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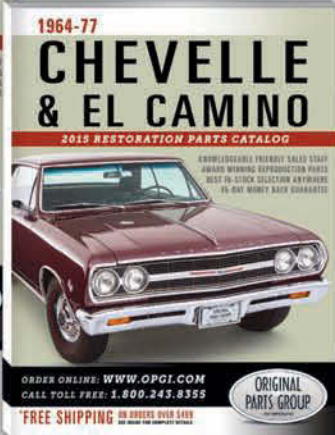
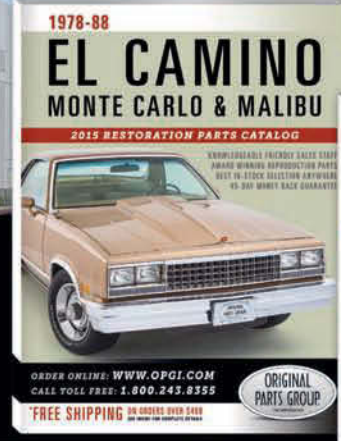
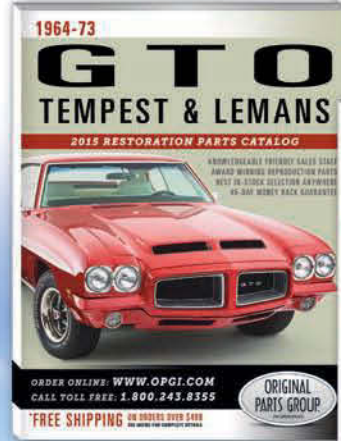
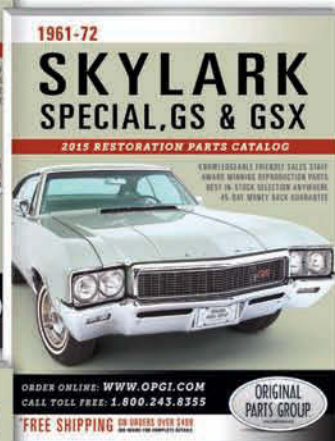
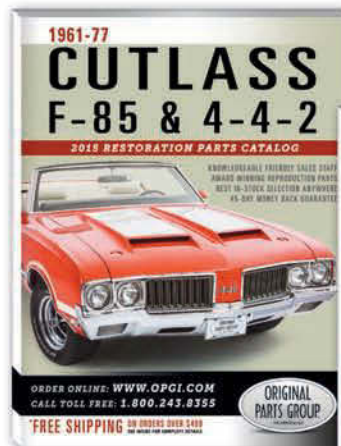
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ON THE COVER

You'd expect that a rare last-year Hemi Charger would have lived a pampered life to look like this one does 40 years on without the benefit of a restoration. Instead, this Super Bee was raced nearly from new, both on the track and the street, and not gently. Thankfully, the brothers who have been with it from the day it was delivered recognized its greatness and have preserved it for all to see. Senior Editor Matt Litwin and Associate Editor Terry Shea photographed it in New Castle, Delaware.

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Get Moving

write this while

pondering the recent passing of blues guitar legend B.B. King.

He'd just come through this area last spring on a tour, and I recall thinking that I should get tickets and finally go see the man play live. At that time, I'd been struck by

the fact that he was still going out on the road, considering that he had to be, what—nearly 80? How many more opportunities would I have before he decided to go into some form of retirement, or worse?

Turns out he would have been 90 later this year, though still going strong until health issues caught up with him. He'd lived a good long life, accomplished a lot and had continued making music right in front of his fans—I'd had more than ample opportunity to be one of them, but I let my last chance slip by.

A similar thing happened several years ago when Les Paul passed. I'd actually tried to go see him about 10 years ago in California, but on the night of the concert, the audience was informed that Mr. Paul was suffering from pneumonia, if memory serves, and wouldn't be performing. He was pushing 90 years old at the time, and I thought that could well have been the last chance anyone would have to see him play. But, he proved me very wrong by bouncing back and continuing to make weekly appearances in a jazz club in Manhattan for years afterward.

It would have been relatively easy for me to go down to New York and take in one of those shows, but it never happened. Mr. Paul passed in 2009 at 94 years of age, and I think he'd continued playing out until just a couple months before. What had I been waiting for?

The common thread here is, of course, the lingering sense of regret over not taking action when the time was right. Catching living legends while they're still among the living is a worthwhile pursuit, but it's not the only one that has been plaguing my thoughts. Some of this spills into my love for car-related activities, many of which I've continued craving, but of late, have not been chasing.

In my defense, having cars as a hobby can be challenging. Most of us drawn to motoring interests aren't content to just read about them or chat online with like-minded enthusiasts. There's a compulsion to get involved, whether by buying a "fun" car intended more for enjoyment than transport, a project car to build, or—heaven forbid—a race car. Being caught up in this hobby can get expensive very quickly, and it also has a voracious appetite for time. In my case, having two young children and a job that keep me busy means that fun with cars has to move down the priority list a few notches.

But whatever it is that makes some of us obsessively drawn to automotive interests is unrelenting, and can't be put off indefinitely. Even if you can't act on the nagging desires to work on a car or go to an event or whatever, it never

really goes away—you can't shake the feeling that you're biding your time until you can do something about it.

And it was that kind of thinking that started to concern me when my reflecting on musical performances that would never occur again expanded into other aspects of my subconscious. How long am I going to wait to get back in the garage, or on a track, or even just out on the road in an old car? Time passes, things change, windows of opportunity may begin to close.

Case in point: A couple of friends who have been similarly consumed with the car thing have sold off their old cars during the past couple years. One of them said he just wasn't using his vintage muscle car, another claimed to have had an epiphany about never finishing his, while yet another needed the money. Maybe I could have helped to convince at least one or two of them to reconsider if we'd all been getting together to work on the cars or take them out.

All such things were in my mind recently when I had the chance to actually get out there and get behind the wheel of an old car for a road trip. It wasn't my car, and the trip was work related, but neither of those things diminished the sense of reconnecting with the types of activities that have motivated me for years. The car was the 1965 Mercury Comet that we're featuring in this issue—a heavily modified project spurred by the folks at Craftsman tools. It was exactly the sort of car that, under different circumstances, might have caused me to think twice about venturing out onto public highways far from home—all those alterations, the electronics, the potential for gremlins to creep in and wreak havoc at the most inopportune time... We overlooked all those things and just headed out with the objective of covering some distance in a contemporary hot rod.

You can get the details on the car in our feature on page 62, but the trip provided me with a much needed shove. It really wasn't a big deal—two days on the road, not all that many miles and no real issues to report. But it was just enough to jolt my conscious mind back to recognizing that these are the little things that need to happen periodically to keep some skin in the game.

Last year, I met a guy at a vintage hot rod rally who was driving a car that had a bit of racing provenance. When I asked if he was concerned about something happening to such a neat slice of hot rodding history, he shook his head emphatically. "No way—these are the good 'ol days, right now. In the future, we probably won't even be able to drive our cars ourselves—that's coming. So today, I'm going to drive the hell out of this thing while the time is here."

Whether his motivations are accurate or not matters little—the real point is to act. Get out there, make the time when you can to do the things that fuel your drive, whatever that may be. 🌱

“...whatever it is that makes some of us obsessively drawn to automotive interests is unrelenting, and can't be put off indefinitely.”

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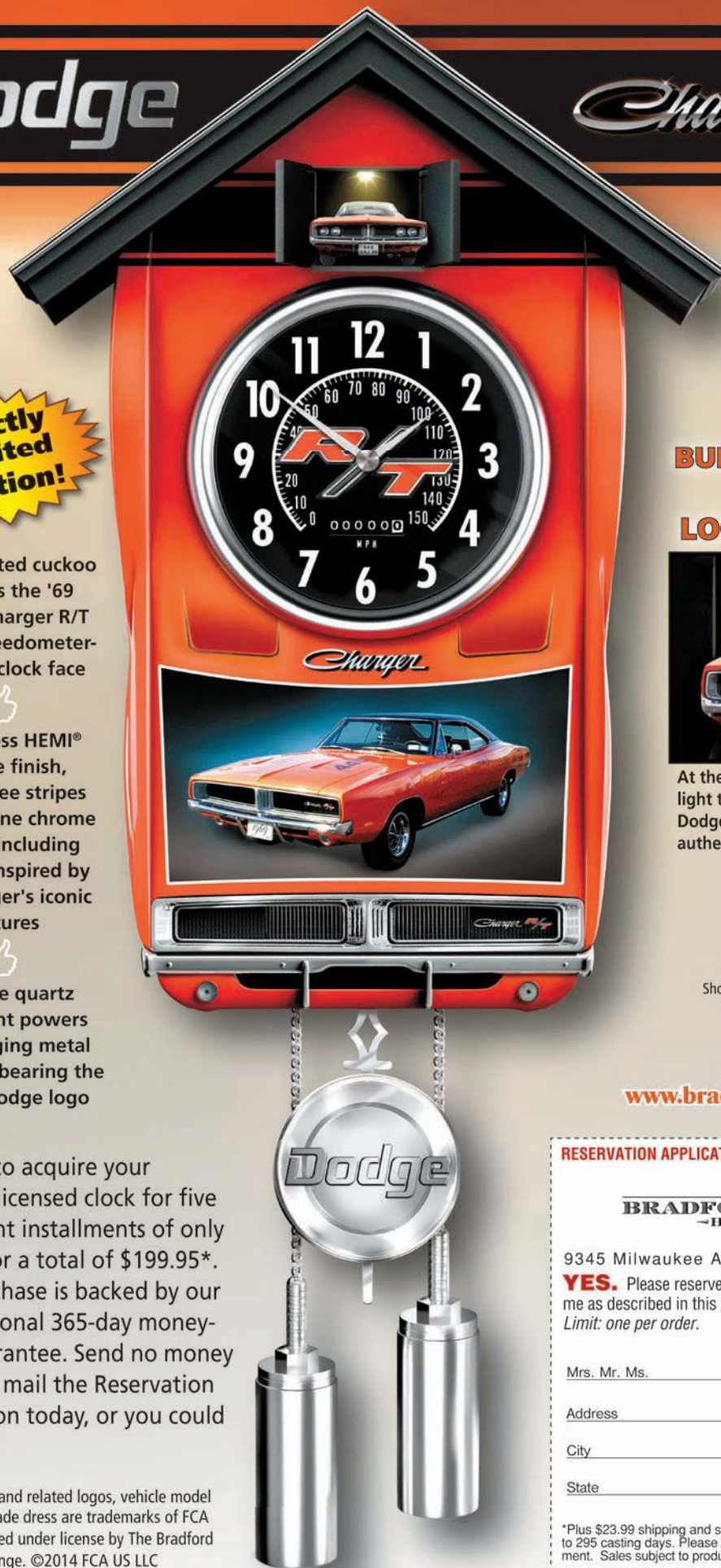
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By Jeff Koch



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2016 CAMARO: AT LAST

It's all-new! (Except for the engine that came from the Corvette, and some chassis stuff shared with the Cadillac ATS.) Well, compared to the 2015 Camaro, it's all-new. Only a couple of badges carry over from the 2015 model.

Three engines are available. A 275-hp two-liter four-cylinder Turbo is the base engine (remember when the LT1 Z28 of 20-odd years ago got that power out of eight cylinders?), with an optional 335-hp 3.6-liter V-6 and the 455-hp LT1 V-8 that comes standard in the new Camaro SS. With 20 pounds of boost on hand, the DOHC, variable-valve-timed Ecotec is said to hit 60 MPH in "well under 6 seconds" and return 30 MPG on the highway. The six-cylinder gets Active Fuel Management, disabling two cylinders during light-load cruising. Each engine is available with a choice of Tremec TR6060 six-speed manual with automatic rev-matching on downshifts, or an eight-speed automatic transmission.

As predicted, the new Camaro is a smaller

car — though not by much: just two and a quarter inches shorter, less than an inch narrower, an inch lower, and with a marginally narrower track. Not as predicted, judging by all of the outrageous design sketches seen in enthusiast magazines, is the styling. In pictures, it looks an awful lot like the outgoing model. This is not a surprise, as Camaro has consistently beat Mustang in sales since its return. That said, the new car manages to put a friendlier face to the wind: a flush belly pan, stretching from the nose to the center of the car, eliminates the need for an air dam; other details reduce lift and drag simultaneously.

Much has been made of the new Camaro sharing the Cadillac ATS's Alpha architecture, but Chevy claims that roughly 70 percent of the Camaro's chassis architecture is unique. Structural rigidity was increased by 28 percent, while the body-in-white is 133 pounds lighter than last year's. Aluminum suspension links dropped 26 pounds. Using an aluminum

instrument panel frame, in lieu of steel, saved more than nine pounds. In all, the new Camaro has dropped 200 pounds.

Between the extra power and the Weight Watchers plan, the 2016 Camaro SS delivers better lap times than the fifth-generation Camaro 1LE — a package that was bred for the track. Heaven only knows what the inevitable package upgrades — 1LE? ZL1? Z28? — will bring.

The multi-link MacPherson strut front suspension has Camaro-specific geometry, while the five-link independent rear suspension reduces squat during acceleration. Magnetic Ride Control, previously limited to the ZL1

Camaro, is now available on the Camaro SS.

The system reads road conditions 1,000 times per second, and automatically adjusts the damper settings to optimize ride comfort and control. All Camaros will ride on Goodyear tires; 18-inch wheels are standard on the base LT, with a variety of 20-inch wheel styles and Eagle Asymmetric F1 rubber compounds as you move up the ladder.

The new Camaro, built in Michigan, will appear at your local Chevy dealer sometime this fall. 🏁





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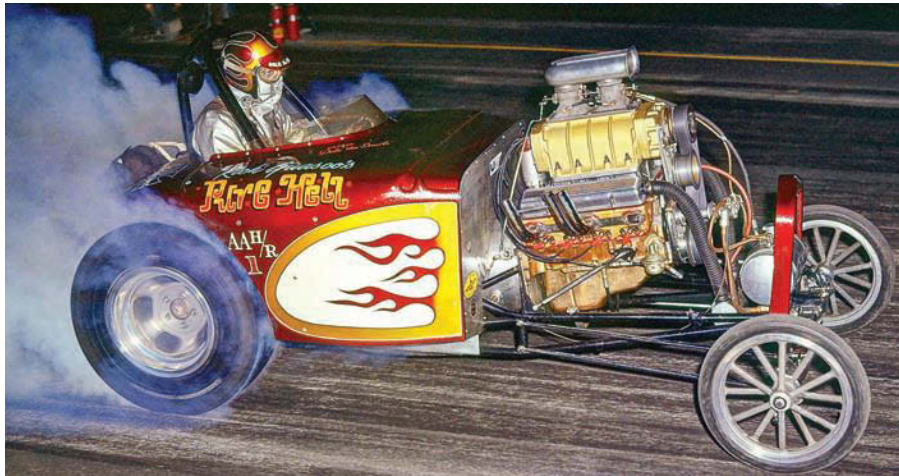


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RICH GUASCO CALLS IT QUITS WITH THE PURE HELL FUEL ALTERED AFTER 53 YEARS

Rich Guasco is done racing perhaps the world's most famous Fuel Altered dragster, *Pure Hell*, after six-plus decades of touring. Yet he keeps adding dates to this summer's farewell tour.

Chalk *Pure Hell*'s popularity up to the shows it puts on; it either rips down the quarter mile on its way to a 6-second pass or pops a huge wheelstand and brings havoc to the track. Or maybe credit Guasco's personality; the *Pure Hell* nickname came not from the car's on-track antics, but from its builder's fiery temper. Or just concede that its longevity on the dragstrip has endeared it to so many fans.

Raced by several drivers (including, most famously, Dale Emery) and with both small-

block Chevy and Chrysler Hemi power over the years, *Pure Hell* was totaled in a road accident in 1968. Guasco sold the car's remains to concentrate on funny cars, but came across his old car in the 1980s and rebuilt *Pure Hell*, returning to the nostalgia racing circuit in the early 1990s.

For safety reasons, the original car now resides in John Lawson's museum in Fresno, California, while the current *Pure Hell* replica that Guasco built still runs the Hemi from the restored car. The latest driver is Brian Hope, who's run a best of 6.05 seconds at 244 MPH.

For more on *Pure Hell* and its farewell tour, visit PureHellRacing.com or Pure Hell Racing on Facebook. — **Daniel Strohl**

TOM HOOVER, "GODFATHER OF THE 426 STREET HEMI," DEAD AT AGE 85

Tom Hoover, the Chrysler engineer and founding member of the Ramchargers racing team, whose work with high-performance engines would ultimately earn him the nickname "Godfather of the 426 Hemi," died on April 30 at age 85, following a long-term illness.

Hoover joined Chrysler in 1955, progressing through various departments before being assigned to the engine lab. There, he worked on everything from an English straight-six to the 426-cu.in. Max Wedge V-8, but it was the group's development of the NASCAR-focused 426 Hemi V-8 that brought him notoriety.

The engine proved a bit too successful in competition, and for 1965 NASCAR banned it on the grounds that it wasn't a production engine. Hoover and his group countered by creating the 426 "Street Hemi" for consumer vehicles in 1966, and a performance legend was born. His work on the engine's development left an indelible mark, earning Hoover the "godfather" nickname.

Among his last projects for the Chrysler was the 1978 L'il Red Truck, the pickup that became infamous for its ability to out-accelerate a same-year Corvette. Hoover would leave Chrysler in 1979, going on to work for General Electric, Bosch and others. — **Kurt Ernst**



GEORGE MATTAR



JIM DONNELLY

ROGER PENSKE TO BE INDUCTED INTO AUTOMOTIVE HALL OF FAME

Sixteen Indy 500 wins, hundreds of race wins and dozens of championships in a variety of series. Even the best drivers only dare to dream of such a record; as a racer, team owner and auto magnate, though, Roger Penske made all that happen, and for those accomplishments the Automotive Hall of Fame will induct him into its ranks this summer.

Penske's success extends beyond that of a team owner. Racing mostly sports cars, he took an SCCA national championship, and *Sports Illustrated* recognized him as its racer of the year for 1960. Against the best drivers of the day, he won the Nassau Tourist Trophy, the Nassau Trophy and the Governor's Trophy at the 1964 Bahamas Speed Week.

Penske quit as a driver in 1965, but he never left racing, transitioning to a team owner who has entered cars in nearly every professional racing series, working with legends like Mark Donohue, Mario Andretti and the Unser family.

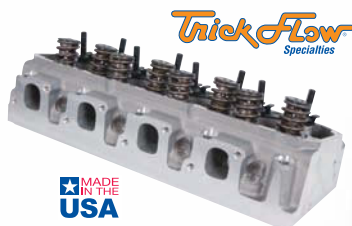
Already inducted into numerous halls of fame, Penske will be honored by the Automotive Hall of Fame for his role as chairman and founder of Penske Corporation and for building Team Penske Racing "into one of the most successful automotive sports teams in history." — **Jim Donnelly**

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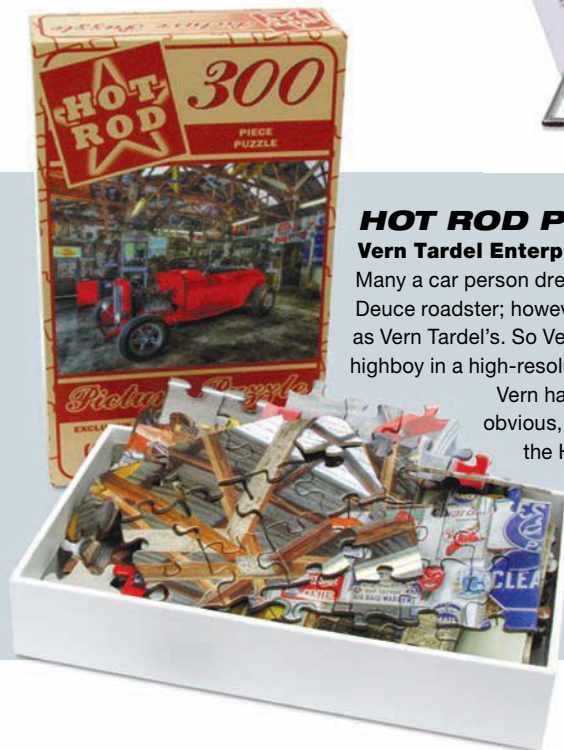
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Polar Lights • www.megahobby.com • 888-642-0093 • \$24.56

What better way to celebrate the golden anniversary of Funny Car racing than to glue and paint a real, old-school flopper for your shelf? Polar Lights is a brand of Round 2 Models, which has been producing 1/25th-scale plastic kits of historic American racing cars, some under the revived AMT and MPC nameplates. This one recreates the *Super Chief*, a Midwest-based fuel Funny, clad with a downsized Dodge Charger body, which was all the rage back around 1970.

The model is simple enough that young builders can tackle it, yet accurately molded so that experienced hobbyists can jump right into super detailing. There's an accurate representation of a correct Logghe chassis; a big, bad blown Hemi; rubber tires and full decaling. You're responsible for doing the painting yourself. We've been impressed with both the variety and eclecticism of these kits; their subjects are often less than obvious. The price above is exclusive to Mega Hobby, which is based in Runnemede, New Jersey.



HOT ROD PICTURE PUZZLE

Vern Tardel Enterprises • www.verntardel.com • fax: 707-838-6065 • \$20.00

Many a car person dreams of calling forth fire, steel and the skill of his or her own hands to build a Deuce roadster; however, fewer of us have the means to actually create one, let alone one as trick as Vern Tardel's. So Vern invited photographer Richard Small into his shop to capture his bright-red highboy in a high-resolution HDR, full-color, 300-piece, 16 x 20-inch puzzle.

Vern has been building hot rods for a long time, and his expertise and meticulousness is obvious, not only in the cars he creates but also in the shop in which he creates them, and the HDR (High-Dynamic Range) process Small used renders it all so vividly that the scene feels magical. Lovers of hot iron and puzzles alike will be enchanted for hours by this clever opportunity to "put together" a flathead-powered Deuce.

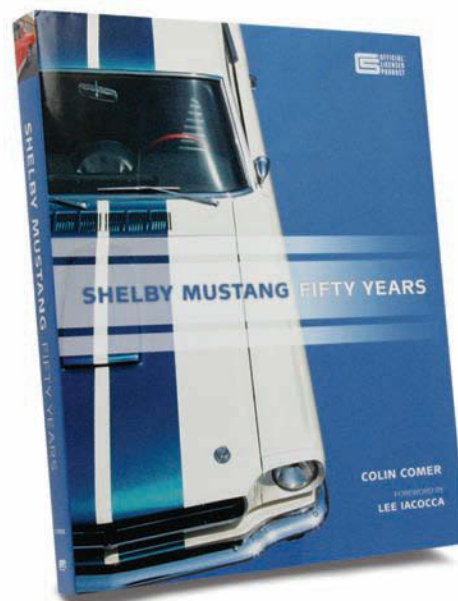
Constructed of hardwearing cardboard, the puzzle comes in a durable box, making it also suitable for younger grease monkeys. Though be advised, once you've turned the contents of the box out, you'll have to put the puzzle together before you can get it all to fit back in again. —J. Daniel Beaudry

SHELBY MUSTANG FIFTY YEARS

Colin Comer • www.motorbooks.com • 800-458-0454 • \$50.00

The world of performance cars surely had a banner year in 1965: The coming of the Funny Car (see elsewhere in this issue), the first big-block Corvette, a rear-engine car winning Indianapolis for the first time and the rise of the Shelby Mustang. The lore of these cars tells us that Carroll Shelby was lukewarm to them at best in terms of sentimentality, but they remain among the most highly collectible Fords today. So they deserved a highly respectful salute in print, and is this ever it.

The 240 pages, with some 600 color and black-and-white images, take you through the entire timeline, right up to today's revived, supercharged Shelby Mustangs. There's a wealth of racing coverage in these pages, period road tests and interviews with Shelby luminaries including Peter Brock, Chuck Cantwell and Rick Kopec. Mechanical variations are covered, including Weber carburetion and the famed Green Hornet prototype, with independent rear suspension. Anniversary books abound, but this volume will be a must-have for people who are into performance Fords of all stripes.



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The band is accented with yellow stitching and the dial and second hand pop with that same memorable color. So go ahead, get to work on that engine or fire up the radial arm saw. This watch can keep up. The only problem you'll have is deciding whether to keep the Stauer Centurion on your dresser with your wallet and car keys or tucked inside your toolbox.

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RARE BEE



One of just 22 made in 1971, this Hemi Super Bee remains in the same family after countless races on the strip and the street

Words by Terry Shea

Photography by the author and Matthew Litwin

Mike Boswell remembers reading a *Motor Trend* article on the 1971 Charger lineup. All-new for that year, Charger wholeheartedly embraced Chrysler's "fuselage" design language for '71. While some remained enamored with the classic Coke bottle looks of the 1968-to-'70 model years, Mike loved the slick lines of the newer car.

Though he was just 11 at the time—and far from being in the market for a muscle car—Mike had an older brother, Rich, who was most definitely in the market. Rich had owned other hot cars, including a Challenger T/A and a Dart Swinger 340. Rich, however, had been seriously injured a few years earlier while on leave from Vietnam when a tire blew in his 440-powered Coronet R/T. The accident left Rich in a wheelchair and without the use of his legs at age

19. But that didn't stop him from indulging his Mopar fascination, as he had the Swinger equipped with hand controls that allowed him to drive it.

During a five-day stay in the V.A. hospital in Wilmington, Delaware, Rich passed the time flipping through magazines, stopping to read details about the '71 Charger—perhaps it was the same issue Mike read. Rich made up his mind, then and there, to get a Hemi-powered Charger.

With his mother and younger brother tagging along, Rich went to Kirkwood Dodge, his local dealer in Wilmington, and ordered a Charger Super Bee a week later. With Dodge dropping all two-door models from the Coronet lineup for '71, the Super Bee moved to the Charger platform in what would



be the Bee's last appearance until 2007. Still a budget muscle car with a bench seat as the base interior option, Super Bee was the least expensive way to get a Hemi-powered Dodge in 1971. The only other way to get a Hemi Charger in '71 was on the more luxury-oriented, bucket-seat-equipped R/T model, and bucket seats just were not in the cards for Rich and his wheelchair, particularly as he had perfected the technique of climbing in through the passenger side.

Rich ordered it with the TorqueFlite three-speed automatic and Super Track Pak, which included the 9¾-inch Dana rear axle with the 4.10:1 gear ratio. Being the stripped-down, budget super car, the Super Bee also came standard sans radio or tachometer. Years later, Mike would learn that Rich's car was one

of just 22 Hemi-equipped Super Bees built by the factory in 1971, and likely one of the last few, given its June build date. For 1971, the final year of the 426 Hemi, Chrysler also began publishing net horsepower figures along with the traditional gross numbers used by the industry for years. That 425 gross hp rating translated to 350 net, and the torque rating from 490-lb.ft. to 390-lb.ft.

When the car arrived a few weeks later, Rich had the dealer install a set of Kropke hand controls, which essentially extended the accelerator and brake pedals to a steering-column-mounted bar (push to go, pull to stop), but kept the pedals in place for any able-bodied person to drive the car in a conventional manner if needed.



Still intimidating 44 years later, the Ramcharger hood scoop popping up next to that "426 Hemi" badge would leave most would-be competitors at the stoplights shaking in their boots.

Now, lest you think that Rich got a Hemi car so he could drive down the street and impress people with those "426 Hemi" badges on the side of the hood or with the aggressive Ramcharger intake open, think again. After a very careful, 1,000-mile break-in period (How many Hemi buyers did that?) and demonstrating to track officials at Cecil County Dragway his ability drive and stop the car, Rich started attacking the quarter-mile in his Super Bee.

And it was no exhibition. Running with the stock Goodyear Polyglas tires and just about everything else as delivered from the factory, Rich soon mastered his Hemi, consistently running into the low

13s. "He actually got a good feel for it," recalls Mike, "because I think the hand was actually a little better than the foot for feeling tire spin. In 1971, he won 10 of the races in D Strictly Stock, and he won the Maryland State Championship. It was pretty neat. We would drive the car there, and he would race and we would load him up. It was a lot of fun for a kid like me, who just loved it." At times, a third brother, Kurt, born smack dab in the middle between Rich and Mike, would drive, particularly when the heat of summer would get too warm for Rich.

Fortunately for Rich, he could enjoy the Hemi on the street. Unfortunately for Rich, the New-





ark, Delaware, police department had a less than welcoming attitude toward street racing and had Rich's and a Chevelle LS6-driving friend's licenses suspended for a month. The canceled check for the fine remains in the car's documents folder.

The Super Bee also served yeoman duty for other Boswell family activities. "My brother was also our baseball coach," says Mike, "so when we would win a game, he would stick the whole team in the Hemi and would take us to get ice cream, which was really cool, being kids and all that." Score another win for the bench seat option.

Rich soon got married, and the Super Bee sat for a few years in the garage. He even tried selling it for just \$1,700 when he needed to pay some taxes, but in gas-crisis-addled 1970s America, he got no takers. Fast forward to 1981, when Rich, tiring of the Northeast winters, decided to move to Florida, and sold the car to Mike.

As the Super Bee had been sitting a long time, Mike and his friend Bob Newlin tore the 426 down. With everything checking out beautifully, the engine required no machining and the duo simply honed the cylinders and fitted new rings before putting it back together. They also installed a bit of an extreme cam that Bob warned was too much for the car. Being in his early 20s, Mike didn't much care, but with slicks and headers on board, the Hemi really began to pick up speed. "I

remember the first pass that I made in it was a very scary thing," says Mike. "When I pushed that throttle down, and the thing came to life with them big loud headers and slicks. It was definitely time to clean the old shorts out."

After getting into the mid-12s at first, Mike was gunning for more. After some "tweaking and tuning," Mike recalled Bob's take on the cam: "It isn't gonna' make any power until you get it up around 7,000 or 7,500 RPM." With those high revs in mind, Mike let it all out during one of his final runs with headers, slicks and that cam installed. "Towards the end of its career, the headers were starting to rust out, so I brazed them up one more time, and I told the boys, 'We're going to go down there and just let it eat.' I brought it off the line hard, and I ran second gear to 7,800 RPM and when it hit about 7,500, it felt like the back of the seat was going to break off. It was pulling so hard, it went to 900 foot and shut completely off because it was out of gas. I only had, like, a Carter fuel pump in it. And it still ran 11.55."

Still, with tags on the car—along with the aging headers and slicks, Mike continued to street race with the Super Bee. "It was a killer," he says. We don't doubt it. But, as the slicks wore out and the headers had nothing left to braze back together, Mike returned the car to stock, going so far as to track down a set of original Polyglas tires for it. The

Who needs a customized van? Original owner Rick Boswell, who required a wheelchair to get around, was perfectly at home operating his '71 Super Bee with its standard flat bench seat. On both street and strip, he proved very adept at driving the Hemi with hand controls.

stock cam, of course, made for a more streetable and stable idle.

Mike had more than his share of "crazy" fun with the car—on and off the track. "When Cecil County opened up their Friday Night Grudge Night to get people off the street," Mike recalls, "they said, 'Rules: No Rules.' We took the car down and all of my friends were there, and they wanted to ride in the car. So, I put six people in the car and it went a 12.56 with six people in it. I barely got it stopped at the other end. I almost went into the woods with it."

Despite putting the car back to stock, Mike still wasn't done racing the Super Bee. In the mid-1990s, he began racing in a NMCA Top Stock F class, "fighting it out with Torinos and Buick Stage 1 cars. My friend, Paull Macallister—who helped me a lot with the car—and I learned what we had to do to beat the Buicks and the Torino 428 Cobra



OWNER'S VIEW

I love the Air Grabber hood scoop. When I used to race on the street, I would pull up next to somebody and I would just flip that switch and that Ramcharger hood would come up, and they would look over and just give you that 'Oh, s--t!' look. I always liked that about the car.

When I first got the car, it was like a race car with the headers and the slicks and everything, and when you would floor that thing and it would take off, it just made the wildest roaring noise. People at the track would say, 'I can tell when it's you. That thing just roars!' I kind of hated to put it back to original because I loved it all stupid and loud.

I always thought that car just had a neat look to it. It was so great that you could go out on a date and you didn't even need to get the girl in the back seat. With the big bench seat up front, you were good to go.

I liked the colors, the badges—I just really love the car. —Mike Boswell



ran." We notice nothing untoward about the Super Bee. The engine moves along freely, the Torque-Flite transmission seems really dialed in, certainly about town, with positive gear changes up and down the rev range.

Old muscle cars are supposed to have sloppy steering. Old muscle cars that were raced hard over and over and over again during the course of three different decades should have completely shot steering by now. Then again, that racing was all in a straight line, and this Super Bee hasn't yet cleared 20,000 total miles. Remarkably, the steering feels rather tight. It's still sort of vague, but hardly sloppy like many of the cars we get into. Even the bias-play tires don't seem to bother us at all.

Finally, with the car warm, Mike lets us loose, but warns us not to bring it to a complete stop, lest we overwhelm the tires on a cooling road surface at dusk. From about five to 10 MPH, I just hammer the throttle and the car accelerates briskly, the small of the back telling the story of the oceans of torque, the tires chirping hard into second gear and the sound a far cry from the docile nature we first experienced. Several blocks away, my colleague Matt Litwin can hear the Hemi let loose. It is everything you expect a Hemi car to be, but proves itself entirely livable. Perhaps Rich's proper, restrictive break-in period is still paying dividends.

With his brother having moved to Florida, Mike removed the hand controls not long after he bought the car, tiring of banging his knees on them every time he got in the Super Bee. And though, in theory, he'd have preferred a four-speed car, he doesn't regret the way the car came into his family. "I would say that the column shift is my biggest pet peeve on the car," says Mike, "but, then again, I loved it because that's how my brother got to drive it with the hand controls. I actually think the hand controls helped him in Strictly Stock." Despite Rich's extremely unfortunate setback in the Coronet, the specially equipped Hemi Super Bee gave him an opportunity to get back in the game, and his little brother ample opportunity to make his own mark on the drag strip and the street. 🍀

From the 1970s to the '90s, this Bee has a long history of moving the odometer a quarter-mile at a time. Middle photo—on the way to the drags in 1983 (left to right): John Campbell, John Lovel, Jim Parker and Mike Boswell.

Jets. It took a while, but it was fun. Then it got to be where the car was running 12.30s in bone-stock trim with Polyglas tires.

"It was pretty neat. But we had learned that we were starting to get hate mail again about the car being raced. We had fun for a year or two, and then I just retired the car from competition for the last time. Every now and again, I will take it down the track."

Today, the Super Bee remains with just 19,000 miles showing on the odometer, the numbers-matching drivetrain still installed

in the car and the original paint still looking amazingly factory fresh for a 44-year-old muscle car that pounded countless hard runs down the strip.

As our photo shoot wound down, Mike offered us a drive in the waning hours of the Delaware daylight. Jumping into the B-body probably felt like getting into any other bench seat-equipped Mopar of the era. There was no settling into a bucket seat. You just lumped yourself right up there on the spring-loaded perch and grabbed the skinny, standard three-spoke steering wheel before turning the key.

Oh, right, the key. Lightning off any big-block muscle car with a pair of thirsty carburetors lined up just under the hood is a visceral experience. The big Hemi fires to life on the first turn of the key and a little stab of the gas pedal. Amazingly, with its stock cam and excellent tuning, along with the replacement carbs, it almost instantly idles with little fanfare and, most surprisingly, little noise. It is the antithesis of the angry Hemi, barely streetable, gasping for air with every opening of every valve and every movement of every piston. It is clearly well tuned and, in a word, docile.

We take to the streets of the suburban areas around Wilmington, mostly lumbering along, as the elephant motor warms up. Mike warns that the thing "is so loaded up" because it hasn't been run hard up through the revs in quite some time. Later he laments, "I can't believe it



1971 DODGE CHARGER SUPER BEE HEMI

425 HORSEPOWER @ 5,000 RPM

490-LB.FT. TORQUE @ 4,000 RPM

1/4-MILE: 13.73 SECONDS @ 104 MPH*

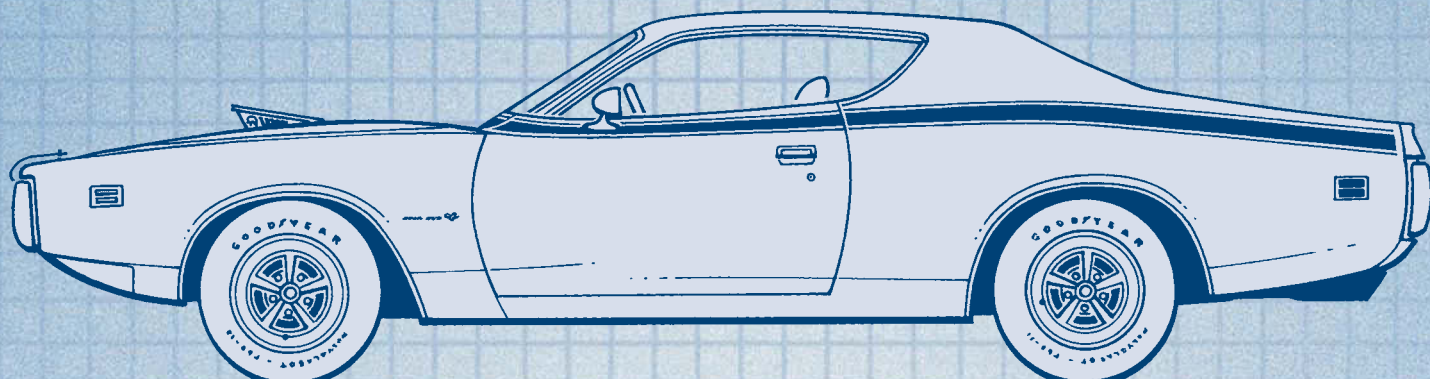


ILLUSTRATION BY RUSSELL VON SAUERS

SPECIFICATIONS

PRICE

Base price \$3,271
Price as profiled \$4,833
Options on car profiled ... Super Track Pak (Dana 9.75-inch Sure Grip rear axle with 4.10:1 final-drive ratio, seven-blade torque-drive fan, 26-inch high-performance radiator with shroud, power disc brakes, dual-breaker distributor), \$219.30; TorqueFlite transmission, \$237.50; 426 CID Hemi engine, \$883.55; power steering, \$116.25; G70 x 14 raised white-letter tires, N/C; vinyl bench seat, N/C; accent tape stripes, N/C; destination, \$106

ENGINE

Block type Chrysler Street Hemi OHV V-8, cast-iron block and cylinder heads
Displacement 426 cubic inches
Bore x stroke 4.25 inches x 3.75 inches
Compression ratio 10.2:1
Horsepower @ RPM 425 @ 5,000 (gross); 350 @ 5,000 (net)
Torque @ RPM 490-lb.ft @ 4,000 (gross); 390-lb.ft @ 4,000 (net)
Valvetrain Hydraulic lifters
Fuel system Two Carter AFB four-barrel, 600-cfm carburetors with mechanical pump
Lubrication system Full-pressure, gear-type pump
Electrical system 12-volts
Exhaust system Low-restriction exhaust manifolds, dual exhaust pipes and mufflers with crossover tube

TRANSMISSION

Type Chrysler TorqueFlite 727 three-speed automatic
Ratios 1st 2.45:1
2nd 1.45:1
3rd 1.00:1
Reverse 2.20:1

DIFFERENTIAL

Type 9.75-inch Dana 60 axle with Sure Grip clutch-type differential
Ratio 4.10:1

STEERING

Type Power-assisted recirculating ball
Ratio 15.7:1
Turns, lock-to-lock 3.5
Turning circle 40.8 feet

BRAKES

Type Hydraulic, power assist
Front 10.72-inch ventilated discs
Rear 11 x 2½-inch drums

CHASSIS & BODY

Construction Unit-body, steel with subframe
Body style Two-door, six-passenger hardtop
Layout Front engine, rear-wheel drive

SUSPENSION

Front Upper and lower control arms, longitudinal torsion bars, torque struts, telescoping shock absorbers, anti-roll bar
Rear Rigid axle, unequal, semi-elliptical, longitudinal leaf springs, telescoping shock absorbers

WHEELS & TIRES

Wheels Styled, stamped steel with trim rings
Tires Front/rear 14 x 6.0 inches (original)
Goodyear Polyglas bias-ply
Front/rear F70-14

WEIGHTS & MEASURES

Wheelbase 115.0 inches
Overall length 205.4 inches
Overall width 79.1 inches
Overall height 52.7 inches
Front track 60.1 inches
Rear track 62.0 inches
Curb weight 4,083 pounds

CAPACITIES

Crankcase 7 quarts (including filter)
Cooling system 18 quarts
Fuel tank 21 gallons

CALCULATED DATA

Bhp per cu.in. 1.00
Weight per bhp 9.61 pounds
Weight per cu.in. 9.58 pounds

PRODUCTION

Dodge produced 22 Charger Super Bees equipped with the 426-cu.in. Hemi engine for 1971, of which 13 were equipped with automatic transmissions.

PERFORMANCE*

Acceleration
0-60 mph. 5.7 seconds
1/4-mile ET 13.73 seconds @ 104 MPH

*Motor Trend December 1970 test of a 1971 Dodge Charger Super Bee equipped with the 426-cu.in., 425-hp engine and three-speed TorqueFlite 727 automatic transmission.



By Jim Donnelly

Photography by Thomas A. DeMauro

It's a classic tale of destiny and accomplishment. Young guy finds a somewhat beat car, acquires it and then dreams with his eyes wide open about resurrecting it, making it real, bringing it back to life. Really, it's one of the most rewarding storylines in our world. Best of all, it still actually happens. An owner with a decent skill set, patience and realistic goals really can save a high-performance relic that otherwise might have ended up in the crusher. That's what happened here with this 1970 Ford Torino GT, which was built to drive and refurbished the very same way.

Much of this story takes place in the beautiful, very rural reaches of Elk County, Pennsylvania, but it didn't start out that way. Rich Sarginger had his eyes on this Torino GT long before he was ever in a position to restore it himself. It goes back to his high-school years and the salvage yard where he worked after classes in the little town of St. Mary's. In many ways, the project of restoring the muscle Ford paralleled his own coming of age. We're always a sucker for a saga that compelling.

What do we know about the car?



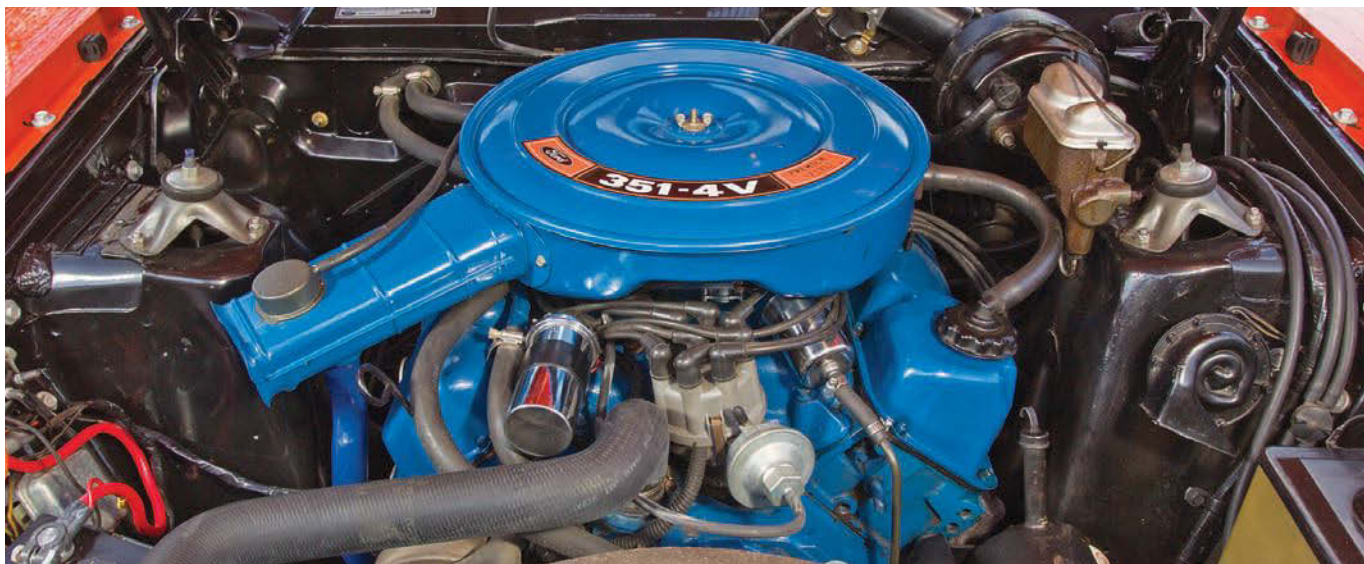
RIGHTEOUS RESCUE

*Salvaged, literally,
this 1970 Torino GT now
gets driven regularly*

It came out of Raleigh, North Carolina, and may have been sold new there. Sometime around 1975 or 1976, one of its front corners was thoroughly dinged in a collision, apparently with a fixed object. Rich knew none of this until his boss at the salvage yard, Steve Michuki, bought the Torino GT from another auto recycler in Virginia Beach, Virginia, going so far as to drive down there from Pennsylvania, make the deal and drive the car back to St. Mary's, damage and all. "That was in September 1977, and he was originally going to fix it up," Rich remem-

bers. "I was working in the junkyard, saved what I could and in 1979, I bought it from him for \$1,500. I recall that he paid \$450 for it at the junkyard in Virginia. I was 15 years old."

Rich's pocketful of cash bought him a Torino GT with a thoroughly wrinkled front fender and damaged grille, but he still had a fully functional automobile. To get it to Pennsylvania, his boss had jury-rigged a headlamp on the driver's side, straightened a bent control arm, bolted on a spare tire and started heading north.



The Cleveland 335-series V-8 had to be replaced when its block cracked after water froze inside. A new engine came out of the same junkyard as the car itself. Owner swapped the Autolite carburetor with a similarly sized Holley four-barrel.

Rich also recalls that in Virginia Beach, the yard owner had trundled it out from a stack of other cars on a forklift. But run it did. As he says, "As soon as I'd seen it, I loved it. Loved the color. Really liked the body style. I scraped everything I could together and bought it. I graduated in 1982, had a kid in 1984, but still managed to get it on the road by 1983."

We're not going to suggest that the Ford's restoration moved at a glacial pace, because Rich was a young adult, just out of school, raising a family and earning a living. Essentially, the project was a three-act play with some very long intermissions. First off, Rich went boneyard prowling on his boss's property and came up with a new left-front fender, front bumper and the distinctive egg crate grille. He also replaced the bent upper

and lower control arms. Later, he refinished the car himself, with little equipment and few resources, in its original shade of Calypso Coral. Then, still later, he turned it over to a local body shop for a professional-level repaint and some additional body repairs. But even as a kid, Rich knew what he had: A Southern car with very little in the way of rust, excellent raw material for the kind of outcome that he envisioned.

It's a hard and not entirely pleasant fact, but the 1970 Torino GT didn't get the instant performance cred of its immediate predecessors. The swoopy sheetmetal wasn't conducive to eliminating front-end lift. It wasn't a pure fastback like the earlier Torinos and Mercury Cyclones; NASCAR teams continued to use those earlier bodies for as long as they were eligible because they drafted far more efficiently on the superspeedways. In drag racing, Ford's performance roost was still being ruled by Cobra Jet Mustangs. Even though a 1970 Torino GT could be optioned all the way up to the 429 Super Cobra Jet package, the car's relative lack of success at the track made it one of the less-desirable performance Fords until fairly recently. Rich is among its cadre of believers who consider it an extremely good-looking hardtop with a lot of available punch. During the restoration, he parts-hunted to outfit it with the optional hideaway headlamps and backlight louvers.

From the outset, the entire time it's been under Rich's stewardship, the Torino GT has been a driver.

Even after it was made roadworthy, Rich drove it regularly, only not in winter. He's proud today that the Ford has never seen snow, or more relevantly, the deadly salt that PennDOT slathers on state highways all winter long. Rich was working on a farm at the time, and the GT went into one of its outbuildings, out of the elements, once the leaves started turning crisp. The same structures served as a de facto paint booth when Rich decided to repaint the car himself. By his own concession, "It wasn't a very good job."

This is an original 351 Cleveland car with a four-barrel Autolite carburetor and a C-6 automatic. Well, almost. We'll let Rich explain what happened.

"About 1986, I would guess, it had a radiator leak," he says. "I was driving a truck back then, and I left it and was gone for a couple of weeks. This was in the fall, and I already had the car stored away. I forgot all about it, and when I got back, there was a big puddle of water on the floor of the shed where I had stored it. I had just filled the radiator with water and never remembered to put antifreeze in it. Just totally forgot. It broke the block by the boss where the fuel pump attaches, and then all the way back. The block was junk. I went back to the same junkyard where I'd bought the car and found another four-barrel 351 and a C-6 out of a 1970 Torino Brougham four-door."

Not much in the way of modification has taken place beneath the hood. Rich had the 335-series

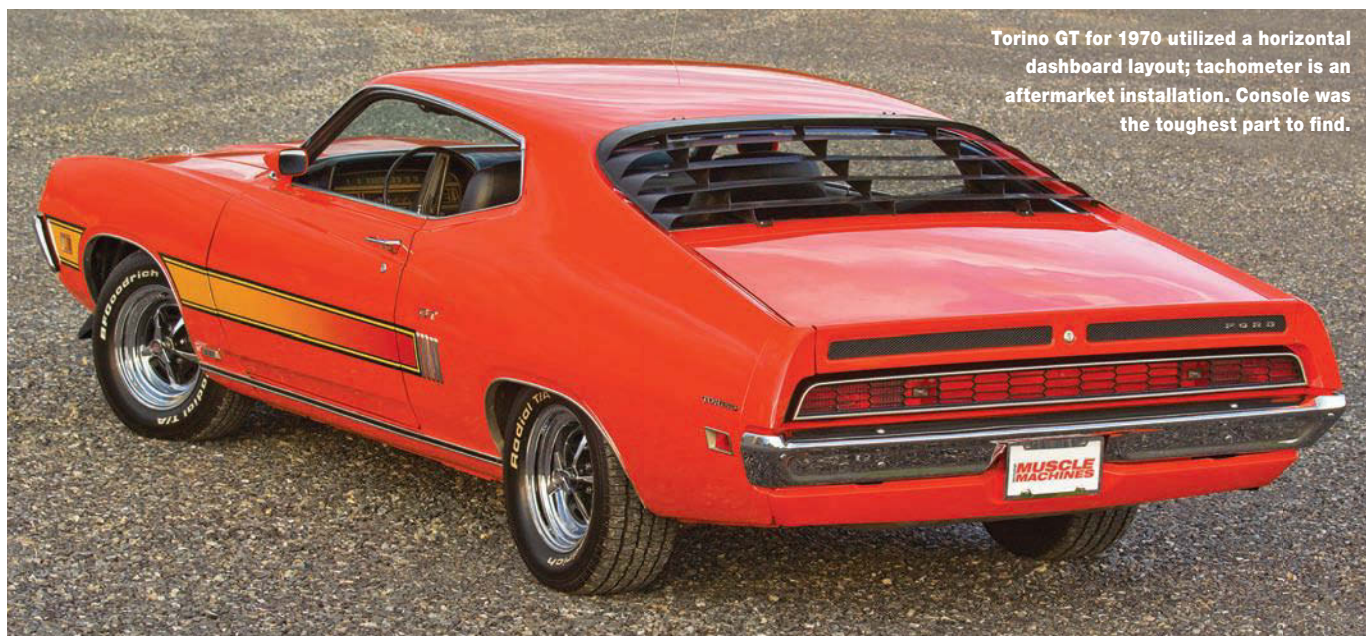
bored an additional .030-inch by Frank Casolo of Ridgeway, Pennsylvania, fitted a PerTronix distributor and Flame-Thrower coil, and most recently replaced the carburetor. He got on the technical support line at Summit Racing Products, where he got a recommendation to buy and install a Holley 600-cfm single-feed four-barrel. As he explains, "I was having trouble with the Autolite unit—hesitation and stumbling, dead spots—and wanted the car to drive better. Summit said this Holley was the closest thing to the stock Autolite, so I put it on. The other one was giving me a little bit of trouble."

The mechanical rejuvenation continued as Rich rebuilt the Torino's original 9-inch Ford rear, dropping the gear ratio to 3.50:1 for a little more snap than the stock 3.25 gearing could provide. He also added new bearings and seals, the rebuild kits also furnished by Summit. Perhaps the biggest technical departure from stock involves the braking system. "I got a bolt-on

conversion kit from JEGS to add disc brakes in the rear," Rich tells us. "I knew I had to replace the wheel seals back there, so I just decided to do it. I wanted to get it to stop better because I drive it. The kit cost me \$358, as I recall, and I had to

weld a one-inch tab onto the rear end to hold the rubber brake line. I was just trying to make it safer to drive, and have a little better handling. That's why I also got new adjustable strut rods that run up from the control arms; they came from

Interior was reconfigured with high-back bucket seats and a console. It started out as a bench-seat car.

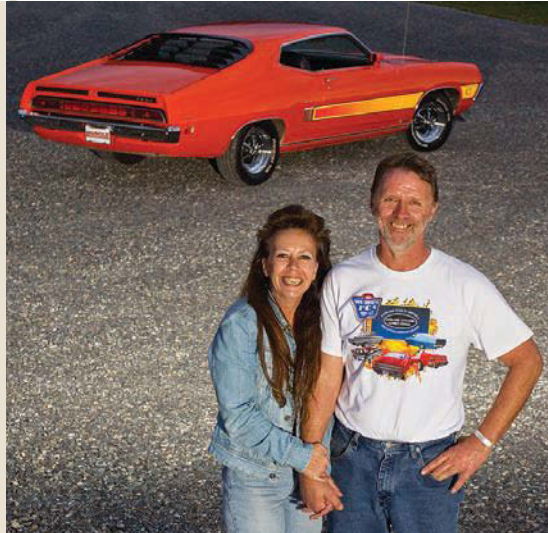


Torino GT for 1970 utilized a horizontal dashboard layout; tachometer is an aftermarket installation. Console was the toughest part to find.

OWNER'S VIEW

I just took this on because I

really liked the orange and black color, and the styling of the Torino GT is different from anything around. I like Mustangs, but there are thousands of them, especially when you go to Carlisle. Meanwhile, you'll maybe see 10 or 12 Torinos. They're not easy to find anymore. It's just a car to make people's heads turn. I can't tell you how many times I've gotten compliments on the car and its paint job, the colors. It's a car people really like to look at, because the styling is so unique. I'm just proud to be an ordinary guy from a small town who can drive a car that looks this good. —*Rich Sarginger*



Street or Track LLC in Michigan." Rubber and poly bushings were used throughout on the chassis, and Rich installed a set of self-made subframe connectors. He also undercoated the frame and underbody with black Magna Paints Chassis Saver from a rattle can, noting that "If I ever want to take it off, all I've got to do is use a pressure washer."

It was 1993 before Rich made

the decision to have the body redone by pros. To repeat, the only replacement body pieces are the front fender and front valance. He sent it about 30 miles away to Cataldo's Collision in Dubois, Pennsylvania, where it was refinished in two-stage basecoat/clearcoat in the original Calypso Coral. We'd like to provide more details of the painting process than that, but unfortunately,

Rich told us that the shop suffered a fire several years ago that incinerated all its old records. Suffice to say, as Rich does, that "the finish hasn't been touched since Cataldo's painted it in 1993. I've never even had to buff it since then." The driver's side door had been creased just below the Laser stripe, probably by a guardrail, and probably at the same time the front end was damaged in the 1970s. Additionally, there was a shallow dent in the left-rear quarter panel, at the rear where the "Torino" script mounts. The shop fixed both irregularities, gently popping the crease and dent out and smoothing the areas with a light coating of filler before priming and painting the car.

When Rich got the Torino, it was a bench-seat car, something he wanted to change. Searching once again, he located two proper 1970 Torino buckets and installed them with trim and hardware from Auto Krafters Incorporated. He also wanted a console, finding a used unit in good shape from a seller in New Castle, Pennsylvania. That same person yielded another accessory that Rich really desired, the louvers that cover the SportsRoof's backlight. As Rich says, "This is a Torino, not a Mustang where you can go to a catalog and buy a reproduction of anything you want. Nobody is making the louvers for the Torino. If you can find a used or NOS set, be prepared to pay \$2,000 to \$3,000 for it. They're not cheap or easy to find."

Rich figures he and his girlfriend, Glenda Williams, drive the Torino GT about 1,000 miles a year, regularly racking up trips to the All-Ford Nationals in Carlisle, about 160 miles one way. It also hits the show circuit along the border of northern Pennsylvania and southern New York. It's collected best-in-show hardware at shows in Bradford, Pennsylvania, and Ellicottville, New York. He likes to chuckle that the only time the car's ever been trailered was when one of the original factory strut rods snapped, necessitating an eight-mile ride home atop a flatbed. Rich remembers, "When that happened, I had about 15 people call me on my cell phone, telling me the car just went by on a flatbed, and asking what was up. That's the only time it's been carried. It's not a trailer queen." 🏆

Laser stripes, correct for 1970, were added to the Torino during the restoration. Being a Southern car, trunk floor was nearly rot-free.



1970 FORD TORINO GT

300 HORSEPOWER @ 5,400 RPM

380-LB.FT. TORQUE @ 3,400 RPM
1/4-MILE: 16.5 SECONDS @ 86.6 MPH*

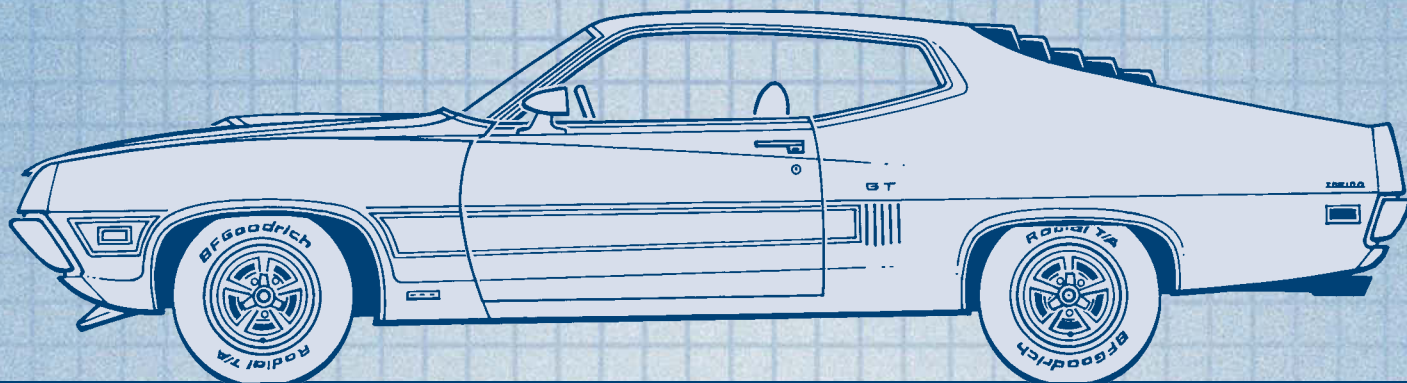


ILLUSTRATION BY RUSSELL VON SAUERS

SPECIFICATIONS

PRICE

Base price	\$3,105.00
Price as profiled	\$4,042.00 (not including destination charge)
Options on car profiled ...	351/300 hp, \$93.00; SelectShift, \$201.00; power front disc brakes, \$65.00; power steering, \$105.00; Hideaway Headlamps, \$53.00; Laser Stripe, \$39.00; Magnum 500 wheels, \$129.00; center console, \$54.00; bucket seats, \$133.00; Sport Slats, \$65.00 (some options added during restoration)

ENGINE

Block type	Ford 335-series "Cleveland" V-8, cast-iron block and cylinder heads
Displacement	351 cubic inches (currently 357.1 cubic inches)
Bore x stroke	4.00 (currently 4.030) x 3.50 inches
Compression ratio	11.0:1
Horsepower @ RPM	300 @ 5,400
Torque @ RPM	380-lb.ft. @ 3,400
Main bearings	Five
Fuel system	Autolite D00F-9510-AB four-barrel carburetor (currently Holley 600-cfm single-feed)
Ignition system	12-volt, Ford breaker-type (currently PerTronix distributor with Flamethrower coil)
Lubrication system	Full pressure
Exhaust system	Cast-iron manifolds, dual exhaust

TRANSMISSION

Type	Ford C-6 three-speed automatic
Ratios	1st 2.46:1 2nd 1.46:1 3rd 1.00:1 Reverse 2.18:1

DIFFERENTIAL

Type	Ford 9-inch with limited-slip
Ratio	3.25:1 (currently 3.50:1)

STEERING

Type	Recirculating ball, power assist
Ratio	20.64:1
Turns, lock-to-lock	3.75
Turning circle	41.6 feet

BRAKES

Type	Hydraulic, power assist
Front	11.3-inch disc
Rear	10 x 2.5-inch drum (currently 10-inch disc)

CHASSIS & BODY

Construction	Unitized body with subframes
Body style	Two-door hardtop coupe
Layout	Front engine, rear-wheel drive

SUSPENSION

Front	Independent, unequal-length control arms, coil springs, telescoping shock absorbers, anti-roll bar
Rear	Live axle, semi-elliptic leaf springs, telescopic shock absorbers

WHEELS & TIRES

Wheels	Magnum 500 five-spoke
Front	14 x 7 inches (currently 15 x 7 inches)
Rear	14 x 7 inches (currently 15 x 7 inches)
Tires	Firestone Wide Oval bias-ply (currently BF Goodrich radial)
Front	F70-14 (currently 215/70R15)
Rear	F70-14 (currently 255/60R15)

WEIGHTS & MEASURES

Wheelbase	117 inches
Overall length	206.2 inches
Overall width	76.8 inches
Overall height	51 inches
Front track	60.5 inches
Rear track	60 inches
Shipping weight	4,210 pounds (est.)

CAPACITIES

Crankcase	5 quarts
Cooling system	14.6 quarts
Fuel tank	20 gallons
Transmission	12 quarts
Rear axle	3.75 pints

CALCULATED DATA

BHP per cu.in.	0.84
Weight per bhp	14.03 pounds
Weight per cu.in.	11.79 pounds

PRODUCTION

Ford assembled 56,819 Torino GTs with the SportsRoof body style in 1970.

PERFORMANCE*

0-60 MPH	8.1 seconds
1/4-mile ET	16 seconds @ 86 MPH

*Source: From a Motor Trend test of a 1970 Torino with 351, automatic transmission and 3.00:1 gears.

1967 Oldsmobile 4-4-2

By Mike McNessor

Photography by Matthew Litwin • Restoration photography courtesy of Tom Wells

Tom Wells is the quintessential DIYer. He built a career as a project manager for a growing department store chain, he built his own house, and he even built ornate colonial-era furnishings to fill that house up.

But after retirement, the 67-year-old York, Pennsylvania, resident had one important task left on his to-do list: build the perfect 1967 4-4-2 to finally replace the car he bought new and sold in the 1960s.

"I've almost always been an Oldsmobile fan," Tom

said. "A guy I knew when I was 18, named Steve Seville, who later became a friend, had a 1965 Olds 4-4-2 that was just absolutely gorgeous and fast. All my friends had Chevys and Fords, but I was looking for something different."

That something different was a brand-new, red 1967 Olds 4-4-2 post coupe that Tom bought in November 1966. His Olds, in addition to being his first new car, lived up to all the hype that Lansing laid on in the

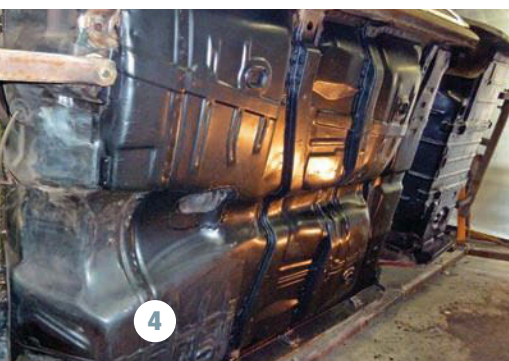
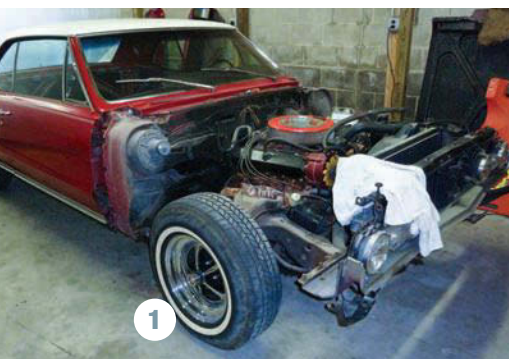


The recipe for Olds performance: one part four-barrel, one part four-speed manual (though manuals and automatics with fewer gears were available) and two parts exhaust. Thomas Wells, owner of this month's feature car, got hooked on Lansing's home cooking back in the 1960s, bought this car in 2012 and restored it himself over a nine-month period.

brochure. It was powerful, good looking and above all, able to handle a Sunday afternoon at the drag strip with nary a whimper.

"My '67 was such a solid car—I used to beat on that car and it never broke," Tom said. "I lived about five miles from the old York U.S. 30 Dragway, so I used to head over there with a set of 15-inch M&H Racemasters on it. On the slicks, I used to have to launch it at 4,000 RPM to keep it from bogging. The





1. Shortly after buying his 1967 4-4-2, Tom Wells rented some garage space at his nephew's Porsche repair/restoration shop and began tearing the car down. **2.** The Olds had led an easy life for a Northeast car, so common rust areas, like the floors, were in excellent shape. **3.** With the body on a rotisserie, Tom used a heat gun and a scraper to peel away the accumulated gunk and factory undercoating. **4.** Once prepped, the

underside was then sprayed with an authentic-looking satin black. **5.** The frame was relieved of the drivetrain and chassis parts then sand blasted. If Tom has a regret in the wake of this project, it's not taking many, many more detailed photos that would've helped with reassembly. **6.** The 4-4-2's 400 V-8 engine had plenty of oil pressure and passed its compression and vacuum exams, so it was cleaned, painted and reinstalled.

drivetrain was all factory, and it never broke an axle, the transmission, the clutch or anything. Two years later, I traded it in on a '69 W-30 that I had nothing but trouble with. I kept blowing the engine up and, after a while, the dealer said they were going to stop repairing it for me. I only had that car for about a year. I always wanted to get another 4-4-2, but you know how life goes on—you get married, have a family and other things take precedence."

By 2012, Tom's search for a 1967 4-4-2 was in full swing, and his friend Tom Landis, a former Oldsmobile sales manager, came through with a promising lead.

"Tom was a sales manager for Shaull Oldsmobile here in York. He had a lot of contacts, and when I decided to get into restoring a car, I got in touch with him. It wasn't long after that he called and said, 'There's a car in Greencastle, Pennsylvania, that you might want to go up and look at.' So, one Sunday afternoon, my wife and I went for a little road trip. I figured that's all it would be."

When Tom started looking the 4-4-2 over, he was impressed with how solid it was for a car that had spent its entire life in the Northeast. The seller had purchased it from the original owner just a short time prior and had plenty of documentation, including a photo of the car with its first owner at the dealership the day he picked it up.

"It had 151,000 miles on it, but the guy took really good care of it. He had all of the documentation, and

everything seemed in order," Tom said. "It had been painted a number of years back, and it wasn't bad—it was just aged. Then the seller opened the trunk and said, 'Look at this stuff.' He had a picture of the day it was picked up in the showroom, as well as the original keys with a leather holder from the dealer."

There would be no turning back on this deal, but as nice as the 4-4-2 was, Tom wanted to make it better.

"When we bought the car, we were coming down the road and my wife said, 'What did we just do?' And I said, 'I think we bought a car.' She said, 'What are you going to do with it?' And I thought, I don't know—I don't have a place to restore this car."

Some more doubt crept in when Tom's friends tried to dissuade him from taking the 4-4-2 apart.

"A lot of my friends said, 'Why are you tearing this car down? Just drive it and enjoy it,'" he said. "But I wanted it clean underneath, I wanted everything spotless and I wanted to know exactly what it was; I wanted to know everything about it."

The need to restore cars apparently runs deep in Tom's family. His nephew owns a Porsche restoration and repair shop in York, called Translog for Porsche. As fate would have it, he had some extra room he was willing to let Tom use.

"He rented me some space back in what he calls Area 51," Tom said. "That was the best thing that could've happened. I did this project pretty much myself, but when I would need a hand they would come

1967 OLDSMOBILE 4-4-2



7. After the hard parts were refinished in POR 15 Chassis Black, the Olds's chassis was treated to new suspension and steering parts, brake and fuel lines and a set of disc brakes. **8.** Here, the chassis awaits the reinstallation of the body. The rear axle was deemed solid enough to run without rebuilding. The Muncie gearbox, however, was rebuilt by Gary Gross. **9.** With the body back on the frame, the 4-4-2's reassembly

continued, with updates like a new master cylinder and brake booster and a PerTronix breakerless ignition. **10.** The paint on the 4-4-2 was stable, so it was scuffed and spot primed. **11.** The 4-4-2's long quarter panels were treated to multiple applications of build primer and block sanded straight. **12.** Tom did his own interior work on the car. Here, a wood wheel stands in for the original plastic steering wheel which he restored.

over and give me one. Plus, I had access to all of their tools—their sandblasting equipment, their rotisserie, the brakes and the presses—tools that I didn't have."

Tom began by methodically disassembling the 4-4-2, stripping the interior, putting the body on a rotisserie and dismantling the chassis.

"I pulled the car in and just started tearing it apart," he said. "A guy who has a shop next to my nephew's place and restores muscle cars would come over once in a while and give me some little bits of advice. One thing he told me that I didn't pay enough attention to, was to photograph everything; it'll make it a lot easier when you start putting it back together."

Using a heat gun and a scraper, Tom removed the old factory undercoating and years of accumulated grime from the 4-4-2's underside. The frame, too, received a thorough scraping and a date with the sandblaster. The underside of the floor pans and the frame were then painted satin black to match the original finish.

Translog for Porsche's Ed Penwell meanwhile handled the body and paint chores. Since the paint was in good shape, Ed opted not to strip the body bare, but applied multiple coats of House of Kolor KD3000 direct-to-substrate build primer and spent hours block sanding those long quarter panels to get them straight.

Ed then shot the 4-4-2 with two coats of R-M base, followed by three coats of House of Kolor clearcoat. The car was ordered two-tone from the factory, red on

the bottom and white on the top. Tom thought at first that it might be possible to skip painting the white top, but changed his mind once he saw the new red finish.

"Ed painted the red first and then did the white top," Tom said. "He did the white top last because I questioned whether or not we needed to do it—it looked really nice. But once he painted the red, the white definitely didn't have the shine or the depth."

Ed also hand painted the car's pinstripes following measurements that Tom provided.

"The double pinstripe that Oldsmobile put on the side is often not painted on correctly, but I got the factory specs on it," Tom said. "I wanted the gaps right, and the width of the stripes right."

While the body was taking shape, Tom was restoring the chassis and drivetrain, adding a few updates for the sake of making the 4-4-2 easier to drive.

"I put disc brakes on the front—it had drums, but front discs were optional on the 1967 4-4-2, so I thought, well, that could be original to the car," he said. "I also went with a 1993-'97 Jeep Grand Cherokee steering box, which bolts right up, has a 12.7:1 ratio and works with just three turns, lock to lock. That really made a difference in the way the car drives; it really tightened things up."

While the body was off, Tom replaced the original fuel and brake lines as well as the car's original fuel tank, all with new reproduction parts.

After the chassis was ready to roll, Tom deliberated



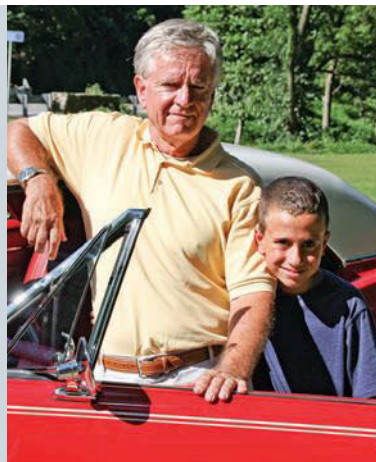
Standard-shift 1967 4-4-2s were topped with a racy looking open element air cleaner with a chrome lid. For '67 4-4-2 package was offered only on Cutlass Supremes.



OWNER'S VIEW

I don't think I would've been happy if I hadn't restored my 4-4-2. You buy a used car, and the owner can tell you all about it, but there are always things you don't know that can go wrong. If you build it yourself, you know exactly what you've got. I had the time, I bought all the manuals and I knew knowledgeable people I could ask for help. I'm happy with the way it turned out, and I'm glad I did it. My grandson Nathan, a muscle car nut himself, loves the car, too.

— Tom Wells



over whether or not to tear down the 4-4-2's original 400 engine, ultimately deciding to leave it sealed up.

"I was kicking around the idea of rebuilding it, but I checked the compression and vacuum, and it seemed solid, so I decided not to tear it apart. I just cleaned it up and got all the grease and grime off it, then repainted it." The engine accessories and the carburetor were rebuilt to stock spec, and Tom updated the distributor with a PerTronix breakerless ignition.

Gary Gross handled the rebuild of the car's original Muncie gearbox and checked out the rear axle, which was then painted and put back in the car with fresh gaskets and seals.

With the body back on the frame, Tom tackled the car's interior on his own, installing fresh carpet, seat foam, seat covers, door panels and a headliner. The original owner had removed the original Rally Pack gauges and replaced them with Stewart Warner units. The factory tach, too, had been lost, and a Sun tach put in its place. So Tom sent the dash bezel to Paul's Chrome to have it replated and then installed a restored Rally Pack and a new gauge wiring harness. He also restored the car's original steering wheel us-

ing an Eastwood Steering Wheel Repair Kit.

"The interior is all brand new," Tom said. "It took time to get the foam just right and the covers on right. It was all about the details, and it turned out nice."

To brighten up the outside of the car, Tom reworked all of the trim, sending out the chrome parts for replating and polishing the stainless bits himself.

"The bumpers were a little pitted, so I sent them out, along with some of the trim," he said. "I spent days polishing the stainless to get the shine that I needed."

The entire restoration took about nine months to complete, beginning in 2012 and ending in 2013. Since then, Tom has showed the car some but has spent a lot of time behind the wheel remembering how it felt to drive his first new car, nearly 50 years ago.

"I worked on this car every day," he said. "I'm retired, but I work part time in the mornings. I'd go up to the shop every day after I got out of work and stay until 8 or 9 at night. I enjoyed doing it. I drive the car quite a bit now—what's the point in having it if you don't drive it? And when you're driving it, you think of the way life was back then. For me, it was a great time to be alive." 🏠

1967 OLDSMOBILE 4-4-2



Replacement of the 4-4-2's original broken plastic dash bezel turned out to be one of the more vexing parts of the entire project. Paul's Chrome was able to refinish a replacement that looks good as new. The original Rally Pack instruments are vague, so a set of aftermarket gauges keeps track of vital functions.



1969 Pontiac GTO

By **Thomas A. DeMauro**

Photography by Jim Donnelly

By 1969, the muscle car market was saturated, splintered and caught in the crosshairs of the federal government and the insurance industry. The GTO, which has been largely credited with inventing the genre, was entering its sixth model year on momentum gained from a well-received '68 redesign and a *Motor Trend* Car of the Year Award. Sales had surged to 87,684 units from 81,722 in '67. After considering the onslaught of competition the GTO faced, the modest increase may begin to appear miraculous.

The '64 389-cu.in. GTO competed with the 330-cu.in. 4-4-2, the 327-cu.in. Chevelle SS and the 383 and 426 street wedge Plymouth and Dodge B-bodies. By '68, however, there were so many performance cars offered that niches had formed to create additional sales opportunities, and '69 only brought more.

Budget performers like the 383 Road Runner and

Super Bee, 350 H.O. Tempest, Custom S and Le Mans; Buick GS 350; W-31 350 Olds and the Ford 428 CJ Cobra and Cyclone CJ 428 prospered at the lower-priced end of the GTO's market, with the promise of GTO-like performance at a bargain price and some with lower insurance premiums.

Direct competition for GTOs optioned the way most would buy them came from the Charger R/T, Coronet R/T and GTX 440s; Chevelle SS 396; Buick GS 400 and the Olds 4-4-2. Dragstrip hero contenders for the Ram Air IV GTOs included the 4-4-2 W-30; Buick GS 400 Stage 1; Chevelle SS 396/375 hp; 426 Hemi Road Runner, GTX, Super Bee, Coronet R/T and Charger R/T and the 428 SCJ Fords and Mercs.

With psychedelic stripes, scoops and spoilers, the Judge went toe-to-toe with the Hurst/Olds, 440



ILLUSTRATION BY JUDI DELL'ANNO

ENGINE

The standard 350-hp 400-cu.in engine powered the vast majority of GTOs. A 366-hp Ram Air and king-of-the-hill 370-hp Ram Air IV comprised the performance options. A 265-hp, low-compression, two-barrel, no-cost engine option, courted the frugal-minded.

BRAKES

The standard brake drums were finned. If optional power disc brakes were ordered, they came with vented front rotors and new single-piston front calipers that replaced the four-piston calipers of previous years.

TRANSMISSION

A heavy-duty three-speed manual was standard with a wide- and close-ratio four-speed optional. For the shiftless, a Turbo 400 three-speed automatic was offered. Hurst floor-shifters were paired with all of the manual transmissions.



Non-Ram-Air GTOs retained closed scoop inserts. The new rear marker lamp was only used on GTOs, not the Tempest or Le Mans.



INTERIOR

A modified Y-pattern adorned the seats and side panels for 1969. Though Strato-bucket seats were standard, a Strato-bench seat could still be ordered, but only in black or Parchment. Bench-seat, column-shift GTOs are a real rarity.

CHASSIS

Though the suspension was carried over from 1968 with ride rates at the wheel of 91-lb.in. front and 110-lb.in. rear, the front coil springs were computer-selected to account for the additional load of optional equipment weights.

BODY

The grilles' floating hash-mark pattern of 1968 was restyled in an egg-crate design that featured horizontal dividing trim. Gunsight parking lamps and tiny side-marker lamps replaced the wraparound arrangement of the previous year. Hideaway headlamps were optional.



Above:

A dual-snorkel air cleaner adorns the 350-hp 400 engine. Its chrome lid, rocker covers and oil fill cap were also standard. A Quadra-Jet carburetor was used on all three four-barrel engine choices and was tuned to match the performance, drivability and emissions requirements of each. This original engine, transmission and rear end have yet to require rebuilds.

Opposite:

A three-speed Hurst shifter in a moderately optioned GTO is not a common sight. Thank the auto insurance guidelines for 1969.

Six-Barrel Road Runner and 440 Six-Pack Super Bee.

Though this covers most of the intermediates offered, it doesn't take into account the hot small-block and big-block compacts, the myriad stylish and quick "pony cars" and the NASCAR, SCCA and NHRA homologation specials.

Not surprisingly, at 72,287, '69 GTO sales had dropped over 15,000 units from '68. Nevertheless, '69 was a watershed year for performance cars, and as usual, the GTO was in the thick of it. In this Buyer's Guide, we've compiled information to aid in finding the right one for you. The Judge is not included, as it warrants its own Buyer's Guide.

ENGINE

The standard 10.75:1 compression, 4.12 x 3.75-inch bore and stroke, 350-hp L78 400 engine featured a Rochester Quadra-Jet carburetor; cast-iron dual-plane intake manifold; breaker-point ignition; D-port heads with 2.11/1.77-inch valves; log-type exhaust manifolds and 2.00-inch headpipes; two-bolt main block and cast crank, rods and pistons. The "068" cam with 288/302-degrees duration and .414/.413-inch lift was installed in manual transmission applications, and a milder 067 cam with 273/289-degrees advertised duration and .410/.413 lift was ahead

of the automatic.

Originally listed as "400 HO," then as "Ram Air" and later "Ram Air III," the L74 366-hp engine featured all of the attributes of the standard engine. Additionally, its block was drilled for four-bolt mains, but built with two-bolt caps. Models with this engine package also had driver-controlled ram air, free-flowing exhaust manifolds, 2.25-inch headpipes and hotter camshafts. Early in the model year, the manual transmission cars were fitted with the 744 cam, with 301/313-degrees advertised duration and .413/.413-inch lift, but later this was replaced with the milder 068 cam, which was already used in the Ram Air automatic applications.

For 1969, the top-performing engine was the new L67 370-hp Ram Air IV. Along with all the goodies of the Ram Air engine, it also featured an aluminum intake manifold with larger ports and a separate cast-iron heat crossover. Its heads included larger intake ports to compliment the already larger-than-D-port round exhaust ports. By replacing the 1.50:1-ratio rocker arms with 1.65:1-ratio units, the high-lift of the stout 308/320-degrees advertised duration 041 cam of the '68 Ram Air II was increased to .520/.520-inch from .470/.470-inch. A set of HD valve springs, 11/32-inch pushrods,

limited-travel hydraulic lifters and high-flow exhaust manifolds were also employed. The bottom end featured a four-bolt-main block, forged pistons and a 60-pound oil pressure relief spring.

On the opposite side of the performance spectrum was the 8.6:1-compression 265-hp L65 400 engine, which was essentially for the buyer who desired GTO style, sans its thirst for high-octane fuel. It featured a Rochester two-barrel carburetor; 1.92/1.66-inch valves in D-port heads; a 254 cam with 269/277-degrees advertised duration and .376/.412-inch lift and a cast bottom end.

What to watch for: The Ram Air IV, which couldn't be ordered with A/C and required the Turbo 400 or M21 and the HD 3.90 or 4.33 Safe-T-Track rear axle, is the most coveted of the engine options, followed by the Ram Air. Be sure to check all engine codes and date codes if the prospect is said to have the original engine or a correct replacement.

The two-letter engine code is stamped on the front passenger side of the block just below the cylinder head deck. Adjacent to the timing cover on the same side is a "2" for "Pontiac," followed by the last several digits of the VIN. D-port cylinder heads have the casting number on the center exhaust ports and the Round-Port heads on the #1 and #8 exhaust ports.

TRANSMISSION

A 10.4-inch diameter clutch in an aluminum bellhousing was used with all manual transmissions.

Three different manual transmissions and one automatic were offered with the GTO. The M13 heavy-duty Dearborn three-speed, which was actually built by Ford, was standard, and the Muncie M20 wide-ratio and M21 close-ratio four-speeds were optional. The latter required 3.90 or 4.33 gears. For those who preferred to let the transmission shift for itself, the M40 Turbo 400 three-speed automatic could be specified.

When the automatic was ordered in conjunction with the optional console, Pontiac's new-for-1969 Rally Sports shifter replaced the Hurst "His and Hers"

of the prior model year. It allowed the driver to manually upshift the automatic transmission from first to second to third gear via detents accessed when pushing the lever to the right and forward without the worry of shifting into neutral. If no console was ordered, the shifter was on the column.

What to watch for: To ensure you have a correct transmission, the two-letter code for the four-speeds can be found stenciled on the top of the case (passenger side for three-speeds). For the automatic, an aluminum plate with the code stamped into it was riveted onto the passenger side of the case. The last several digits of the VIN are stamped on the transmission. Rebuild kits are available for these gearboxes.

CHASSIS

The 112-inch-wheelbase perimeter frame with torque boxes that debuted in '68 was retained. Convertibles again used a boxed-side-rail frame, and the heavy-duty frame option could place it under a hardtop. Independent short/long arm ("SLA") front suspension featured a 1-inch anti-roll bar, and a four-link rear suspension located the solid axle; coil springs and tubular shocks were used at all four corners. A ride-and-handling package with increased spring rates and firmer shocks was optional.

Standard steering featured a 24:1 ratio and five turns-to-lock, while the optional power steering reduced the steering effort, the ratio to 17.5:1 and turns-to-lock to 4.2.

Manual four-wheel drum brakes were standard with power assist optional. For increased braking performance, extra-cost power front disc brakes were offered.

The 8.2-inch, 10-bolt rear-end could be fitted with gear ratios from 2.56 to 4.33, with some restrictions due to engine and option choices. An open differential was standard with Safe-T-Track (limited-slip) optional. A heavy-duty four-pinion unit was used for rear gear ratios of 3.36 and numerically higher.

Standard 14 x 6-inch steel wheels with hubcaps were shod with G78-14 nylon-belted tires. Full wheel covers were optional, as were 14 x 6 Rally II wheels. Upgraded tires



included G78-14 fiberglass-belted red or white lines and larger G70-14 fiberglass-belted Wide Ovals with red or white lines.

What to watch for: Check the frame for signs of rust, especially at the torque boxes and along the side rails. Also, look for pull marks on the frame that may indicate previous accident damage.

The suspension, steering and brake systems are straightforward in designs, and many parts were shared with other GM models, so replacement parts are plentiful from various sources. There are also basic rebuild kits available for the 10-bolt rear, but some of the gear ratios may not be available.

The rear axle code can be found on the driver's side axle tube near the brake-line clip.

BODY & INTERIOR

It was a year of visual refinement. The grilles were restyled, as was the front valance panel and side marker lamps. "Ram Air" or "Ram Air IV" callouts on the hood scoops identified these two optional engines. As was true across the GM A-body lines, vent windows were retired on hardtops and convertibles, and a new upper-level ventilation system was employed. "GTO" lettering replaced the familiar crest on the front fender, but the shape of the

former became that of the rear side marker lamp. Wider taillamps now appeared to float between the body and reshaped rear bumpers.

Inside, the instrument panel was redesigned and fully padded, with the three gauge pods, new rocker switches, heater controls and radio (if so ordered), integrated into it. The seats and side panel Expanded Morrokide upholstery patterns were also revised and headrests became standard beginning in January 1969.

What to watch for: Rally gauges with instrument panel tach and Rally gauges with clock were optional—the latter could be paired with the extra-cost hood tach. The Deluxe three-spoke steering wheel could be upgraded to the extra-cost Custom Sports simulated-wood wheel featuring a new cushioned horn button. Multiple radios and stereos were also offered.

The VIN can be viewed through the driver's side base of the windshield. Our example is 242379A100001. 2=Pontiac; 42=GTO; 37=hardtop (67=convertible); 9=1969; A=Atlanta assembly plant; 1=V-8 (1-5); 100001 sequential serial number.

Decoding the data plate (see right), located on the top of the cowl on the driver's side, provides pertinent information to help determine how stock or not the GTO is.

DECODING THE DATA PLATE:

LINE 2: "ST 69-24237 ATL 526896 BDY"
decodes as 69 = year; 2 = Pontiac Motor Division; 42 = GTO series; 37 = hardtop body style; ATL = Atlanta plant; 526896 = consecutive body number at the plant

LINE 3: "TR 256 59 G PNT" TR = trim; 256 = interior color—green; 59 = lower body color—Limelight Green; G = Cordova top—dark green.

LINE 4: "03C" 03 = March; C—third week

OWNER'S VIEW

Newlyweds Jim and Susan Hobson ordered their '69 GTO in Limelight Green with a dark green Cordova top from Perkins Pontiac in Thomasville, North Carolina.

It features the standard 350-hp 400 engine, three-speed manual and the 3.23 rear gear that came with optional A/C. Other extra-cost items include

hideaway headlamps, Rally gauges, power disc brakes and steering, for a total of \$4,338.68 on a \$3,156 base.

Why no optional transmission? Jim explains, "I didn't want the automatic, and since I was under 21, the insurance surcharges applied to a four-speed car would have made my premiums higher than my car payments!" Susan learned how to drive stick on the GTO, and it was family-driven daily until 1984. It even towed a boat.

In 2004, Jim had mechanical work done, and by 2007 at 103,000 miles, the body and trim restoration began. The shell was media blasted to reveal minimal rust, and the panels were smoothed and repainted with PPG base/clear urethane. Its original Endura front bumper was restored and the Cordova top was replaced.

New foam padding was installed on the bucket seats, but the original dark green covers were retained and the carpet was replaced. Non-stock parts included larger 15 x 7 Rally II wheels sans trim rings, 235/60R15 radials.

Jim says, "Our GTO has beautiful lines and curves and tons of torque for our rides down memory lane."



ENGINE

UPC	Block Code	Cu.In.	Horsepower	Torque	Head Cast	Trans
L78	WT	400	350	445	48	Man.
L78	YS	400	350	445	62	Auto.
L74	WS	400	366	445	48	Man.
L74	YZ	400	366	445	48	Auto.
L67	WW	400	370	445	722	Man.
L67	XP	400	370	445	722	Auto.
L65	XM, XX	400	265	397	45	Auto.

TRANSMISSION

UPC Code	Type	Ratio:1st	2nd	3rd	4th	Rev.	Available
M13 DB	3-spd man.	2.42	1.61	1.00	----	2.33	Standard
M20 FO	4-spd man.	2.52	1.88	1.46	1.00	2.59	Opt. w/L78-L74
M21 FT	4-spd man.	2.20	1.64	1.28	1.00	2.27	Opt. w/L78-L74-L67
M40 PX	3-spd auto.	2.48	1.48	1.00	----	2.08	Opt. w/L78
M40 PQ	3-spd auto.	2.48	1.48	1.00	----	2.08	Opt. w/L74-L67
M40 PT	3-spd auto.	2.48	1.48	1.00	----	2.08	Opt. w/L65

DIFFERENTIAL

Axle Ratio	Open Differential	Safe-T-Track 2-Pinion	Safe-T-Track 4-Pinion
2.56	WB	XB	--
2.78	WC	XC	--
2.93	WD	XD	--
3.08	WE	XE	--
3.23	WF	XF	--
3.36	WG	----	XG
3.55	WH	----	XH
3.90	----	----	XK
4.33	----	----	XM

BRAKES

Standard Drums: Front	Standard Drums: Rear	Optional Rotors: Front	Optional Rotors: Rear
9.50 x 2.50 inches	9.50 x 2.00 inches	11.12-inch dia.	N/A

WHEELS AND TIRES

Standard Wheel	Standard Tire	Optional Wheel	Optional Tires
14 x 6 inches	G78-14	14 x 6 inch	G78-14 white line fiberglass-belted
red line		Rally II	G78-14 red line fiberglass-belted
			G70-14 Wide Oval white line
			G70-14 Wide Oval red line

Note: G78-14 white line tires were a no-cost option

RESTORATION & PERFORMANCE PARTS

Many items required to restore a '69 GTO from a bare shell to a concours contender are available. However, the reproduction Endura bumper and front fenders are still facing quality issues, and a deck lid is not available yet. Currently, there are no new stock replacement engine blocks, D-port iron heads, transmissions or rear-ends being reproduced, so original cores are still required.

Should you decide to mildly or heavily modify your GTO, you'll be pleased to learn that myriad

performance parts are available, even including large-bore aftermarket blocks and aluminum cylinder heads. Overdrive manual and automatic transmission kits are plentiful, as well. Aftermarket limited-slip units for the stock 10-bolt can be had, not to mention complete 12-bolt assemblies.

Chassis and brake system commonality with its GM A-body siblings has resulted in a broad array of modernized suspension packages and disc brake options for the GTO, and even new aftermarket frames fitted with state-of-the-art suspension systems are available. 🛠️

WHAT TO PAY

1969 PONTIAC GTO

	Engine	Low	Average	High
Hardtop	Standard	\$14,000	\$35,000	\$60,000
Convertible	Standard	\$20,000	\$45,000	\$70,000
Hardtop	Ram Air III	\$17,000	\$44,000	\$72,000
Convertible	Ram Air III	\$25,000	\$58,000	\$87,000
Hardtop	Ram Air IV	\$24,000	\$62,000	\$100,000
Convertible	Ram Air IV	\$52,000	\$100,000	\$145,000

Note: step-down option two-barrel 400 GTO values N/A

HARD PARTS

Assembly manual	\$19
Front bucket seat upholstery kit (pair)	\$369
Interior assembled side-panel kit	\$649
Bare Custom Sports wood wheel	\$319
Dash pad	\$899
Manual transmission console kit	\$399
Hideaway headlight conversion kit	\$1,199
Front fender patch panel w/inner brace (LH or RH)	\$69
Steel hood	\$415
Full door skin (LH or RH)	\$169
Full rear quarter-panel (LH or RH)	\$489
One-piece trunk floor with braces	\$589
Rear bumper	\$369

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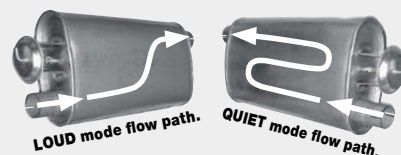
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FUNNIES TURN 50

*The flopper comes to
drag racing, circa 1965*

By Jim Donnelly

Photography interpreted by Bob McClurg, from his archives

Somehow, an important anniversary in the world of drag racing was nearly overlooked this year. When the 1960s began, doorslammer racing took place first in the Stock Eliminator category, which didn't take long to get bumped up to Super Stock after the Big Three started getting truly serious about marketing performance. Some of the Super Stocks then began morphing into exhibition cars, with injected and supercharged engines, burning nitromethane and performing wild, wheels-up passes to the delight of crowds. Only the big drag sanctioning bodies didn't quite know what to make of these new-breed drag cars, or which category to put them in.

The development of these faux muscle cars stands as one of the most important and enduring innovations in drag history, and Funny Car remains a standalone category in drag racing to this very day. Still, when did it all start? We conversed with Bob McClurg, who was there, cameras slung over his shoulders, while the whole phenomenon was getting underway. He pegs the beginning of the Funny Car as we know it, with unlimited nitro power and fiberglass replica bodies, to

“Bruce Larson's *USA-1* 1966 Chevelle match racer, sponsored by Sutliff Chevrolet, is considered **THE** very first all-fiberglass Funny Car. It was built by Larson and crewman Don Milletics at Bruce's shop in Dauphin, Pennsylvania.

The car featured a two-by-three-inch box-tube chassis, a two-piece fiberglass body with a flip-up front end and a Hilborn-injected 427 rat motor for power. It debuted in December 1966, and it was a real handful to drive with its Muncie M-22 'rock crusher' four-speed transmission. That prompted Larson to soon switch over to a Turbo Hydra-Matic 400, and the car finally calmed down.

In this photo, Bruce is seen going up against Ed Carter's *Chevy 2 Heavy*, a former Steve Bovan car, at the famous Smokers' Meet at Famoso in Bakersfield. Even though the body was entirely fiberglass, the Chevelle still had a functional driver's door. Best time for the car was an 8.78 at 160 MPH. The *USA-1* has now been fully restored. ”

1965. That means the Funny Car marks its golden anniversary this year.

“That's the indisputable truth,” Bob tells us. “Because the blown Dodge Chargers and the Chrisman Comets were classified as exhibition stockers. It wasn't until Chrysler showed up with the altered-wheelbase Mopars at the 1965 AHRA Winternationals in Phoenix that somebody said, ‘Wow, that really looks funny,’ which is where the term ‘Funny Car’ was actually first used. So we're on the same page about that.”



“ This odd creation was called *Psycho*, a Ford Mustang fastback campaigned by the Southern California team of Ralph Snodgrass and Pat Mahnken. An early Funny Car, it originally started out life as a 406 Ford-powered AA/FA, a Fuel Altered, with a Fiat body. They switched over to an altered-wheelbase Mustang body once the Funny Cars started to become popular. The direct-drive Ford cranked out times in the mid-8s, and I remember that it was a real handful to drive.

There were about two or three early Funnies that were converted from Fuel Altered; one of the first was the Davis and Ingram Mustang, *Colt .45*. Then Snodgrass and Mahnken converted this car and raced it. Then [Ron] Pellegrini took the *Chapman Automotive* Fuel Altered and put a Ford body on it, calling it the *Super Mustang*. And, also in Southern California, Jim Thomas took the Fiat-bodied *Genuine Suspension* Fuel Altered and put an AMX body on it. So they were out there. The irony is, today's Fuel Altered use modified Funny Car chassis in many cases. ”

“ In the middle of 1965, ‘Gentleman Gene’ Snow traded in his Hemi-powered Plymouth Super Stocker for this T-Bar Chassis-constructed 1964 altered-wheelbase Dodge Dart match racer.

The car went through a number of subsequent incarnations, but in its earliest form, it was known for what Gene called his ‘victory leaps.’ Anytime when Gene won a race, he’d approach the track promotor and offer that for X number of dollars, he’d add a bunch of weight to the trunk and go out there and do wheelstands down the track. Most of the time, the promotor would agree to it to keep the crowd happy. Those were Gene’s victory leaps.

During its three-year career, the *Rambunctious* Dart won over 90 percent of its match races, and recorded a best of 9.12 at 144 MPH while running in the C/Fuel Dragster class during the U.S. Nationals at Indy in 1967. It looked pretty much like a street car, but today it’s in the NHRA Museum in a later iteration, with an extended front end. ”

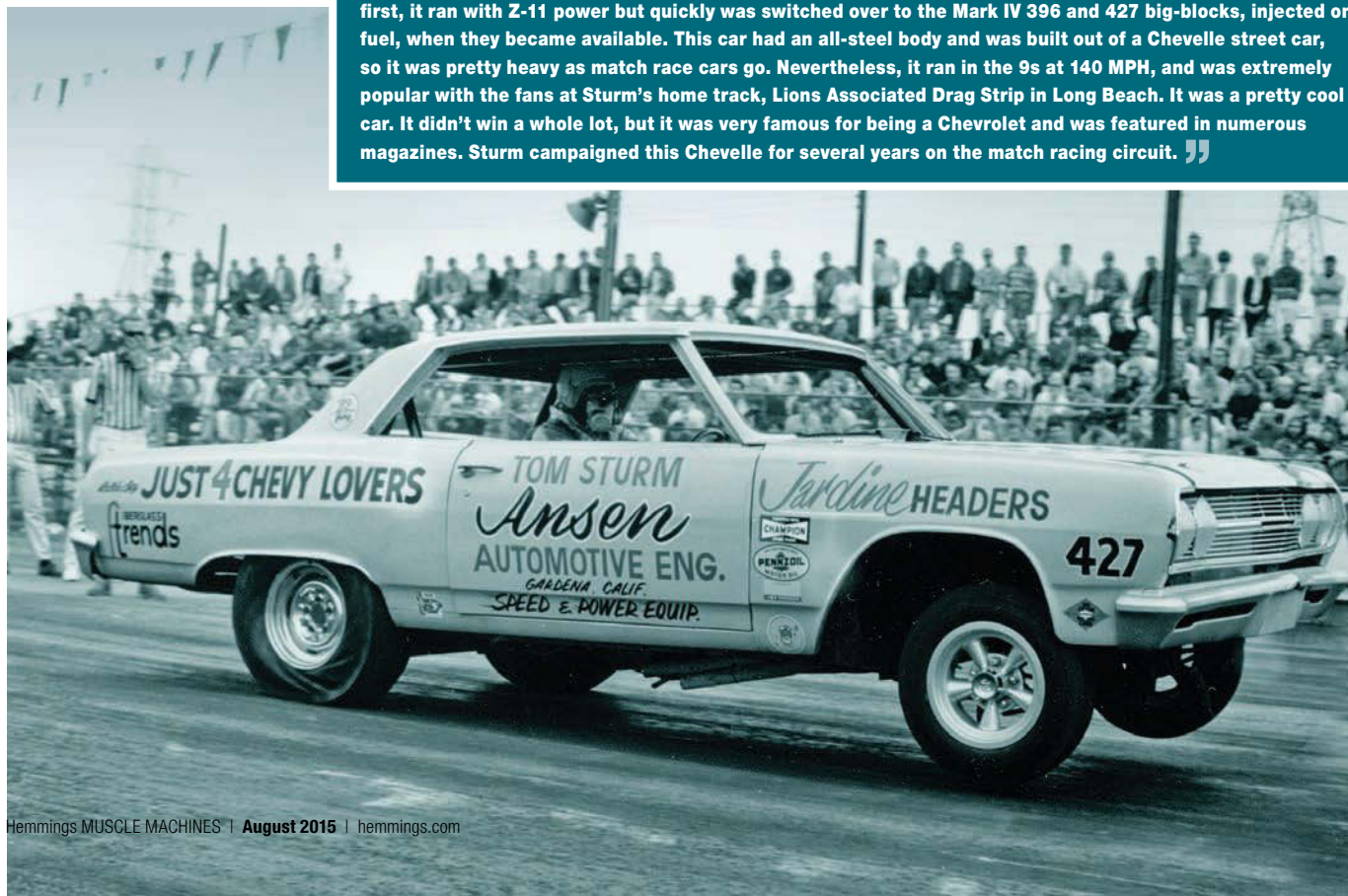




“ In 1968, the Gasser great ‘Big John’ Mazmanian traded in his AA/GS Austin for this new Plymouth Barracuda Funny Car with an Exhibition Engineering chassis, powered by a nitro-burning 392 Chrysler built by Dave Zeuschel and driven by Maz’s nephew, Richard Siroonian. In typical Big John tradition, this car was as beautiful as it was fast, and with its candy apple red paint job by Reuben, it quickly earned the nickname *Candy Cuda*.

Maz’s first Cuda out of a succession of three set a lot of track records, running both 392 and 426 Chrysler Hemi power. Unfortunately, this car met its end late in 1969 when it hit a telephone pole in the lights, though I can’t remember which track it happened at. By then, Mazmanian already had a new 1970 ‘Cuda in the works at Woody Gilmore’s Race Car Engineering. When that car came out, there was a big family flap where Siroonian’s family didn’t want him running the Funny Car anymore, but he continued to drive it, although you didn’t know from week to week who was going to be in the car. ”

“ Tom Sturm’s Chevelle, *Just 4 Chevy Lovers*, debuted in 1964 with Ansen Automotive sponsorship. At first, it ran with Z-11 power but quickly was switched over to the Mark IV 396 and 427 big-blocks, injected on fuel, when they became available. This car had an all-steel body and was built out of a Chevelle street car, so it was pretty heavy as match race cars go. Nevertheless, it ran in the 9s at 140 MPH, and was extremely popular with the fans at Sturm’s home track, Lions Associated Drag Strip in Long Beach. It was a pretty cool car. It didn’t win a whole lot, but it was very famous for being a Chevrolet and was featured in numerous magazines. Sturm campaigned this Chevelle for several years on the match racing circuit. ”





“ The *Javelin-1*, sponsored by Doug Thorley Headers, was built by Woody Gilmore's Race Car Engineering primarily to address Doug's growing concern about blower explosions and fires, which were becoming more commonplace in 1968. As a result, Gilmore put the engine behind the driver. With its one-piece body removed from the chassis, *Javelin-1* looked like an overgrown go-kart.

This was the first AMC Funny Car to run a fuel-burning 401, although that engine proved to be quite problematic. That all changed in a hurry after Doug and Glenn Okazaki installed a 392 Chrysler, and the car immediately ran at 200 MPH. Satisfied with those results, Doug convinced American Motors racing chief Walter Czarnecki to allow him to purchase a new Hemi from Keith Black and install it. After that, runs in the 207 MPH range were the end result. *Javelin-1* was a rare case of a rear-engine Funny Car that worked well, but it was destroyed when it flew in the lights at Irwindale Raceway in the summer of 1969. ”

“ Here is Jack Chrisman's Mercury Comet Funny Car in action at the 1967 U.S. Nationals at Indianapolis. The first Comet was the blown, tire-smoking 1964 hardtop. Next up was the red, rebodied 1964 hardtop that was re-debuted in 1965. Comet number three was the roofless flip-up roadster from 1966 that was destroyed when it ran off the end of the track at New York National Speedway on Long Island and burned to the ground. And then, the all-new 1967 car was also destroyed at New York National. So this is Comet number five, the ex-Eddie Schartmann 1966 Mercury factory car. Got all that now? ”



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SUPER COUPON

STEP STOOL/WORKING PLATFORM
HaulMaster
LOT 62515
66911 shown

\$1999 REG. PRICE \$34.99

SAVE 42%

79818679

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SUPER COUPON

RETRACTABLE AIR HOSE REEL WITH 3/8" x 50 FT. HOSE
LOT 93897 shown
69265/62344

\$5885 REG. PRICE \$149.99

SAVE OVER \$91

79788295

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SUPER COUPON

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79796846

WOW SUPER COUPON

44", 13 DRAWER INDUSTRIAL QUALITY ROLLER CABINET
US*GENERAL
LOT 62744/68784 shown
69387/62270/62591

\$36999 REG. PRICE \$699.99

SAVE \$330

79780775

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SUPER COUPON

6" SELF-VACUUMING AIR PALM SANDER
CENTRALPNEUMATIC
LOT 60628
98895 shown

\$1999 REG. PRICE \$59.99

SAVE 66%

79815883

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SUPER COUPON

PITTSBURGH AUTOMOTIVE 3 TON HEAVY DUTY STEEL JACK STANDS
LOT 38846 shown
69597/61196/62392

\$1999 REG. PRICE \$44.99

SAVE 55%

79800396

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SUPER COUPON

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WOW SUPER COUPON

90 AMP FLUX WIRE WELDER
CHICAGO ELECTRIC
LOT 61849/62719
68887 shown

\$9999 REG. PRICE \$149.99

SAVE \$50

79788858

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SUPER COUPON

12 TON SHOP PRESS
CENTRAL MACHINERY
• Pair of Arbor Plates Included
LOT 33497/60604 shown

\$9999 REG. PRICE \$199.99

SAVE \$100

79789155

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SUPER COUPON

PITTSBURGH MOTORCYCLE 1000 LB. CAPACITY MOTORCYCLE LIFT
LOT 69904
68892 shown

\$29999 REG. PRICE \$699.99

SAVE \$400

79797431

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SUPER COUPON

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WOW SUPER COUPON

2.5 HP, 21 GALLON, 125 PSI VERTICAL AIR COMPRESSOR
CENTRAL PNEUMATIC
LOT 67847 shown
61454/61693

\$14999 REG. PRICE \$219.99

SAVE \$70

79799066

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SUPER COUPON

4-1/2" ANGLE GRINDER
drillmaster
LOT 60625 shown
69645/95578

\$999 REG. PRICE \$19.99

SAVE 50%

79799905

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SUPER COUPON

4 PIECE 1" x 15 FT. RATCHETING TIE DOWNS
HaulMaster
LOT 60405/61524
62322/90984 shown

\$799 REG. PRICE \$19.99

SAVE 60%

79819292

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SUPER COUPON

3/8" PROFESSIONAL AIR RATCHET WRENCH
CENTRAL PNEUMATIC
LOT 47706/60631/47214 shown

\$1499 REG. PRICE \$27.99

SAVE 46%

79822967

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SUPER COUPON

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Customer Rating ★★★★★

RAPID PUMP® 1.5 TON ALUMINUM RACING JACK

PITTSBURGH AUTOMOTIVE

LOT 69252/68053 shown
60569/62160/62496/62516

- 3-1/2 Pumps Lifts
- Most Vehicles
- Weighs 27 lbs.

"The Undisputed King of the Garage"
— Four Wheeler Magazine

AWARD WINNING QUALITY

\$59.99 REG. PRICE \$119.99 **SAVE \$60**

79836405

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WOW SUPER COUPON

FREE

WITH ANY PURCHASE PITTSBURGH 6 PIECE SCREWDRIVER SET

LOT 61313/62570/62728
62583/47770 shown

\$4.99 VALUE

79836890

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WOW SUPER COUPON

6" VARIABLE SPEED DUAL ACTION POLISHER

CHICAGO ELECTRIC POWER TOOLS

LOT 62403
69924 shown

SAVE \$72 **NEW**

\$57.99 REG. PRICE \$129.99

79826476

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WOW SUPER COUPON

TORQUE WRENCHES PITTSBURGH PRO

"Impressive Accuracy, Amazing Value"
— Car Craft Magazine

1/4" DRIVE LOT 2696/61277
3/8" DRIVE LOT 807/61276
1/2" DRIVE LOT 62431
239 shown

SAVE 60%

\$11.99 REG. PRICE \$29.99

79836386

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WOW SUPER COUPON

1/2" INDUSTRIAL QUALITY SUPER HIGH TORQUE IMPACT WRENCH

SAVE \$55

\$74.99 REG. PRICE \$129.99

LOT 62627
68424 shown

700 ft. lbs. Max. Torque

79836725

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WOW SUPER COUPON

1 TON CAPACITY FOLDABLE SHOP CRANE

PITTSBURGH

LOT 69445/93840
61858/69512 shown

SAVE \$150

\$99.99 REG. PRICE \$249.99

79824648

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WOW SUPER COUPON

8" 5 SPEED BENCH MOUNT DRILL PRESS

CENTRAL MACHINERY

LOT 62390/62520
60238 shown

SAVE \$80 **REG. PRICE \$129.99**

\$49.99

79832879

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WOW SUPER COUPON

900 PEAK/700 RUNNING WATTS 2 HP (63 CC) 2 CYCLE GAS RECREATIONAL GENERATOR

NEW STONKAT

LOT 66619/60338/69381/62472 shown

SAVE OVER \$84 **\$95** **\$119.99** REG. PRICE \$179.99

79832277

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WOW SUPER COUPON

2 PIECE VEHICLE WHEEL DOLLIES

PITTSBURGH AUTOMOTIVE

LOT 60343/67338 shown

1500 lb. Capacity

SAVE 38% **\$48.88** **\$59.99** REG. PRICE \$79.99

79832923

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WOW SUPER COUPON

350 LB. CAPACITY 30" SERVICE CART WITH LOCKING DRAWER

US*GENERAL

LOT 61161/90428 shown

SAVE \$92 **\$57.99** REG. PRICE \$149.99

79833104

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WOW SUPER COUPON

10 FT. x 20 FT. PORTABLE CAR CANOPY

HFT

LOT 60728
69034 shown

SAVE \$80 **\$119.99** REG. PRICE \$199.99

79835545

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WOW SUPER COUPON

NEW HARDY MECHANIC'S GLOVES

MEDIUM LOT 61235
62434/62426

LARGE LOT 93640
60447/62433
62428

X-LARGE LOT 93641
60448/62432
62429 shown

SAVE 60% **\$3.99** REG. PRICE \$9.99

79824825

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WOW SUPER COUPON

3 PIECE TITANIUM NITRIDE COATED HIGH SPEED STEEL STEP DRILLS

WARRIOR

LOT 91616 shown
69087/60379

Drill 28 Hole Sizes

SAVE 55% **\$8.99** REG. PRICE \$19.99

79829501

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WOW SUPER COUPON

12,000 LB. ELECTRIC WINCH WITH REMOTE CONTROL AND AUTOMATIC BRAKE

BADLAND

LOT 61256
60813/61889
68142 shown

SAVE \$300 **\$299.99** REG. PRICE \$599.99

79831605

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WOW SUPER COUPON

5 PIECE PLIERS SET

PITTSBURGH

LOT 69352/69351 shown
69353/62597/62598

SAVE 55% **\$8.99** REG. PRICE \$19.99

79845526

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LETTER OF THE MONTH: IN THE MIDDLE OF ALL THE ACTION

The 1966 Le Mans 24 Hour race with its 2-1-3 Ford finish has to be one of the the most famous in motor sports history, and I'm proud to say I was there. For proof of that, I offer the photo on page 36 of the "Historic Racing" article in the *HMM* #141, May 2015. Right in the middle of the photo, there's a skinny guy in sunglasses with his shirttail hanging out with nothing to do except watch while the building full of people in frenzied activity gets the GT40 MkIIs ready to race. That's me.

Two weeks earlier, I had been discharged from the Army in Germany, and a buddy and I drove over to the very small rural town of Le Mans in his 1956 four-door, six-cylinder Chevy 210. When we arrived at Le Mans the day before the big event, we knew to scout the town for teams getting ready to race. The Ford team was easy to find, because there were about a half dozen U.S. 18-wheelers parked there at the Peugeot garage. That was extraordinary, because I had never before seen an American 18-wheeler in Europe, where the typical big-rig truck hauls 10 tons on fewer tires. As best I can remember, the trucks were white and labeled either "Ford" or "Holman & Moody," and some were mobile machine shops and some were parts or tool bins.

We walked inside the garage and watched what was going on for a few hours, until we were finally asked to leave. That was after I had taken a few dozen photos.

What I remember most vividly about the race itself was the 7-liter GT40s pulling away from their pit stops in the middle of the night and

softly squealing their tires for a few hundred feet as they hurried back into the race. The tires weren't spinning or smoking; they were going just slightly faster than the road beneath them, as the drivers knew exactly the right touch on their accelerator pedals for quickest takeoff. As a non-French-speaking spectator without a seat in the stands (or an umbrella), I didn't fully comprehend the wet finish and had to read about it later.

Much, much later, I was at a car show looking at a pair of 1968 Shelby Mustang G.T.500s and happened to notice that the cast-aluminum valve covers commemorate the Le Mans victories of Ford/Shelby.

Kent Johnston

Houston, Texas

P.S. My photos, two of which are below, show that winning cars #1, #2 and #5 all had Goodyear tires at the Peugeot garage. So did non-finish car #7. But non-finish car #8 had Firestones.



FORD RACING ARCHIVES

TEMPUS FUGIT!

Jim McGowan's column about the younger generation and muscle cars ("Tempus Fugit!" *HMM* #142) struck home with me.

This generation really isn't at all interested in these older cars or their "old technology." They see them as something they can sell someday to make money, to pay for a new Audi, BMW or some other foreign car. I presently own two Chevilles, a restored '69 big-block and a '71 wagon that I'm trying to bring back after sitting for years (I've owned both for 40 years). I used to run both cars at my local track, Atco, when I lived in New Jersey, and had a blast with 'em. Now, when I go to a local track, unless it's an old-muscle car meet, all you see are Hondas, Toyotas, Subaru

and maybe an occasional Mustang or Camaro. We took my oldest grandson to see a muscle car shootout a few years ago, and he wasn't interested at all in the racing; talking to others my age (60-plus), they tell similar stories. Unfortunately, when we're gone, the whole older-car hobby will go also. Take a look around local car shows, you may see some turbocharged, nitrous'd import among the older Chevys, Mopars and Fords whose older owners are just standing around talking about the good old days. If you have an old car, enjoy it while you can still drive it, because the kids don't want 'em.

Wayne Nolasco
Via email

TESTING, TESTING?

Eric English put one deep in the cheap seats with his recent "Super Duper" article (*HMM* #143, July, 2015) regarding the 1971 Ford Mach 1 with the 429 SCJ motor. What makes his story unique is the fact that he was able to "read between the lines" concerning the car's true capability as an American muscle car. Mr. English points out that there were no period road tests by the magazines from that era for the Mach 1 with a 429 SCJ motor. Testing was limited to Mach 1s equipped with only the 429 CJ motor with an automatic transmission and 3.50 gearing. That car also came equipped with air conditioning, power windows, power steering and power brakes.

Despite the liability of running a fully

9th Annual
Hemmings Motor News
CONCOURS D'ELEGANCE
SEPT. 25, 26, 27, 2015



**Keynote Speaker:
Peter Brock**
The youngest automotive designer in
General Motors history, he went on to
create the Shelby Cobra Daytona coupe that won an international
championship, and to run Datsun's racing effort on the West Coast.

FRIDAY, SEPTEMBER 25th
REGISTRATION & RALLY

- 9:00 a.m. – 4:00 p.m. registration at the Saratoga Automobile Museum, 110 Avenue of the Pines, Saratoga Springs, New York.
- 12:00 noon – Join in a Rally through the beautiful Adirondack region
- 2:00 p.m. – 4:00 p.m. Cruise scenic Lake George, Queen of the Lakes, aboard the Adirondack Shoreline cruise – w/luncheon buffet (boarding promptly at 2:00 p.m.)

Deadline to purchase Lake George Cruise tickets: 9/4/15

SATURDAY, SEPTEMBER 26th
CRUISE-IN SPECTACULAR

Gates open at 8:00 a.m. An all-makes car show that's open to cars, trucks and motorcycles. Including: muscle cars, street rods, sports, exotics and classics.

Awards at 2:00 p.m.

Cocktail reception with cash bar at 6:00 p.m. and dinner available at 7:00 p.m. at the Gideon Putnam Resort.

Keynote speaker: Peter Brock, automotive designer.

SUNDAY, SEPTEMBER 27th
CONCOURS d'ELEGANCE

10:00 a.m. – 4:00 p.m. Open to concours-quality, pre-1973 cars, by invitation only.

MORE TROPHIES TO BE AWARDED THAN EVER BEFORE!
Winners also will appear in the pages of *Hemmings Motor News* and *Hemmings Classic Car*.



Master of Ceremonies: Ed Lucas
Lifelong car enthusiast, director & chief judge for the Classic Car Club of America & expert commentator for the Barrett-Jackson Auctions.

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- Hudson
- Police Cars (through 1990)
- Chevy Mark IV Big-Block Engines

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Open to concours-quality, pre-1973 collector cars, by invitation only.

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. . . or to find out more, log on to: hemmings.com/concours

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- Hampton Inn & Suites – 518-584-2100 (Group Code: HMC)
- The Saratoga Hilton – 888-866-3596 (Group Code: ALCV)
- Courtyard Marriott – 866-210-9325 (Group Code: Hemmings Concours)

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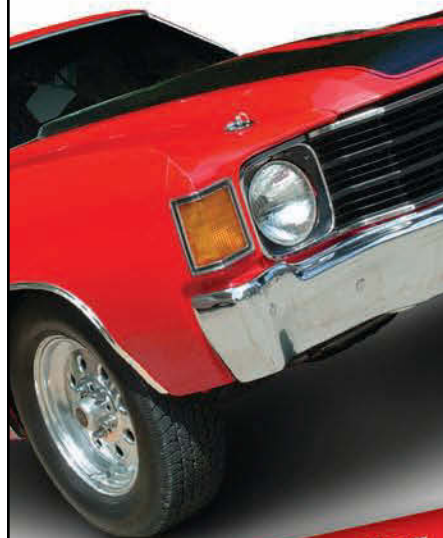
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equipped car in the ¼ mile, this particular Mach 1 ran a 13.9 @100 MPH. In this context, your average gearhead has to ask himself the “what-ifs.” What if they had road tested a ’71 Mach 1 with the 429 SCJ, the Detroit-locker differential, 4.11 gears and a Toploader four-speed? What if the owner didn’t check the boxes for amenities such as air conditioning, power windows and power brakes and steering? What if the owner didn’t buy the Mach 1 and bought a stripped-down 1971 Mustang coupe with the R-code 429 SCJ mill? Both of the above mentioned cars were built by Ford and were available through the dealers, though unfortunately they were never road tested by the magazines of the day.

After doing a little research on my own, I haven’t been able to find any period road tests for the 1969 and 1970 Mach 1s with the 428 SCJ motor from any magazine, either. Am I the only one who finds it strange that the best (fastest) that Ford had to offer during the last three years of the muscle car era went untested? That’s why I take anyone’s top-10 muscle car list with a grain of salt. On a side note, I’m in total agreement with Chris Delwiche (Backfire, *HMM* #142, June 2015) in regards to his point that *HMM* has become more balanced concerning Ford-related articles.

Now, if I could just get my car in the Modified Muscle section of *HMM*, then I wouldn’t have anything to whine about.

Mark Dell Acqua
Millersville, Maryland

GETTING NOSTALGIC

Jim McGowan’s column raised some very valid points (“Is Your First Resto Your Last?” *HMM* #141). I was pushing 70 when I got nostalgic for my first new car, a 1965 GTO. I have no restoration skills and was not about to invest the time and money in learning skills, buying tools and so on, to do such work. I had talked to several people who had restored cars, and the vast majority said to buy one already done; it will be less expensive. So I took their advice and bought a nice looking, driveable (not a trailer queen) car. Yes, I had to do some fixing, such as paint buffing, brakes, tires, clutch and ball joints, but my neighbor helped me, and the costs were reasonable. Those are things that I expected and took into consideration. That’s probably the norm, I suspect.

My main reason for writing is that the decision process you discuss would be much more informed if people had a reasonable idea what it would cost to do a restoration before they get in over their heads. Example: You see an unlicensed car

advertised for sale. Unless you have some idea of restoration costs, you are about to play the old-car version of Russian roulette. One way to help people in these situations would be to include the cost of restorations that appear in your magazine and when they were done. You often include many pictures of the various stages of these restorations so folks could compare those with their potential purchases of cars in need of restoration. Granted, it would be very subjective, but it should be in the ballpark. In addition, if I am looking at a car that needs restoration and I also, by reading your magazine, following auctions, etc, have a reasonable idea what that car will be worth restored, I can at least know if I am going to be overspending to restore it when the cost of the purchase and restoration costs are added up. Some folks probably don’t give a toot if they overspend, because they really want that particular car or they have more money than brains. That’s one reason I am happy that I didn’t come across my original GTO in need of restoration. I might have made an emotional decision that I would later regret. You might even consider such an addition mandatory unless doing so would severely restrict your access to getting cars for your stories.

This comes to mind for practical reasons and also because, when reading these restoration stories, I often say “Man, I wonder how much money is tied up in that car!” Keep up with the interesting and thought-provoking articles.

Bruce Winters
Rochester, New York

The buy-versus-build debate has been going on for a long time, Bruce, and when absolute practicality is exercised, building usually loses. But, there are plenty of variables to consider. The one that always seems to be raised first is the owner’s capacity to do the required work on his or her own. Sweat equity can offset cash outlay, but you have to have the skills, the equipment, the time and the space to make that work. Plenty of people do, but plenty of others who haven’t tackled a major project before have gotten in over their heads. We’ve heard calls for restoration costs as part of our stories before, and in fact, this month’s feature on a ’68 4-4-2 actually gives some figures. But most of the time, the car owners we profile either don’t want to know what their total costs were, having intentionally not tallied everything, or they just don’t want everyone else to know, for a variety of reasons. Where that information is made available, we’ll try to

present it, but anyone considering such a project really needs to do some objective research before venturing forth. —Ed.

A VIRTUAL REALITY?

Jim McGowan is right, the Street Rod guys grew up in the '50s and are at the end of the line. We muscle car guys are from the '60s, and are slowing down. But I can't imagine a kid growing up in the '70s lust-ing to restore a Taurus.

And the new kids couldn't care less about any car. My 18-year-old grandson honestly believes he has set a world record time around Le Mans in a Lambo, drifting all the way. Virtually. He also can land an F-18 on the *Enterprise* and beat Tiger Woods at Pebble Beach. Thing is, he doesn't even have a learner's permit. And among his peers, that is nothing to be ashamed of.

Butch Gordo
Winnemucca, Nevada

DRIVE, DON'T DISMANTLE

I love your magazine and find the variety of vehicles and articles make a great read. I particularly enjoyed your April 2015 edition when I saw the 1968 Firebird on the front cover. When I was in university, my brother called to inform me that the 1968 Firebird convertible I had been checking out two blocks from where I lived was for sale. I told him I wasn't interested, but he insisted, so I checked it out. I ended up using the next year's tuition money to buy the car. It was very solid, with little rust. The car was a 400 model with AT, PS, PB, PT and A/C (which had been removed). The car was driveable, but was going to need some work. I planned to do a full restoration. I was young and foolish, and even though a friend suggested I just drive it for a while before I start the restoration, I dove right in and started to disassemble the car. It had been painted a silver metalflake with blue arrows. It was quite an ugly sight. The car then stayed in pieces going from one garage to another for the next 13 years, until, during a low point in my life, I sold it. When the car was loaded onto the flat deck, I knew I was going to regret selling it. It has now been almost 31 years since I purchased that car, and as time goes on and I read the monthly Restoration Profiles, I so much regret taking it apart so many years ago. If I had been driving it, I may not have sold it. Oh, the crazy things we do when we're young. The only consolation is that a 1978 Corvette with 42,000 miles sits in my garage, which partly makes up for the loss.

Adrian Le Claire
Halifax Nova Scotia, Canada 🇳🇸

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Unsung Muscle: '72 440 Dodge Charger Rallye

In retrospect,

1972 was a pretty good year in muscle cars. Back then though, we all sat around bemoan-

ing the demise of the 426 Hemi and 440

Six-Pack Mopar engines, the LS6 454 Chevy

and the Ram Air Pontiacs and the 429CJ at Ford.

And everything was low compression so that their sacred unleaded 91-octane gas could be used.

Indeed, it seemed like the world was ending in 1972 if you were a muscle car guy.

But hey, you could still walk into any Dodge dealer and order up a Charger Rallye with the big 440 under the hood. And that was no bad thing.

Rallye? Yeah, that was Dodge's insurance dodge. While the insurance companies were on the prowl for R/Ts in order to punch their owners with a high-performance surcharge, Dodge product planners quietly dropped the R/T designation after the '71 model year and called the Charger's performance-oriented high-trim level Rallye instead.

The Rallye option (A57) consisted of darker grille paint, a power-bulge hood with blacked-out sections, simulated door louvers, louvered tail lights, special instrument panel, wider tires and specially tuned suspension with front and rear sway bars.

The 440 Magnum, one of the best and strongest running street engines throughout the muscle car era, took a hard shot after the '71 model year. Yes, the compression ratio was dropped to 8.2:1 for '72, and the whole auto industry went to net horsepower ratings. But the 440 Magnum was still one of the industry's top power producers, rated 280 net horsepower at 4,800 RPM and 375 lb.ft. of torque at 3,200 RPM. The engine still breathed through a big Holley four-barrel with 1.56-inch primaries and 1.72-inch secondaries and real dual exhausts.

I test drove a 440 Charger Rallye in 1972 and wrote it up for *Speed and Supercar* magazine. Backing up the 440 in our test car was a three-speed TorqueFlite automatic and 3.55 gears with SureGrip. A nice combi-

nation. But by 1972, the Dodge Charger had grown into a huge car. While still classified as an intermediate, the Charger was one hell of a chunk of car at 205.4 inches in length on a 115-inch wheelbase. Frankly, it was a lot of bulk for 280 horsepower to push around. And our test numbers reflected that.

Out on the Raceway Park dragstrip in Englishtown, New Jersey, the Charger Rallye managed a 15.00 ET at 86 MPH—pretty ho-hum compared to times turned by its Charger cousins in years past. We knew we could knock a good half-second off that ET and add at least 5 MPH to the trap speed just by re-curving the distributor and rejettng the Holley. We'd done it on other '72 muscle cars suffering from emissions starvation. But we never had the chance to prove it with this Charger Rallye. A 14.50/91 MPH time slip would have put it squarely in 1960s muscle car performance parameters.

One thing that did impress us greatly was this Charger's handling. Mopars were not known as being among the best handling of muscle cars in the day. But this Charger Rallye, with its optional giant G60-15 Goodyear Polyglas GT tires on 7-inch-wide Rally wheels and new-for-'72 rear anti-roll stabilizer bar, had excellent handling and superb over-the road feel. Despite its bulk, you could push this car along. If you had to drive from New York City to Miami in 18 hours, the 440 Charger Rallye would have been a good choice for the task.

When I started writing this column, thinking about the Dodge Charger Rallye, I realized that it must be a rare combination. I don't recall ever even seeing one at a car show. I don't think even Mopar collector Tim Wellborn had one in his extensive Dodge Charger collection.

So I turned to Mopar numbers guru Galen Govier and his excellent reference books to check out just how rare. According to Govier, Chrysler Corp. produced 3,431 Dodge Charger Rallye hardtops in '72. Of those, 785 were factory fitted with the 440 Magnum engine. Little did I know that I was driving one of just 785 1972 440 Dodge Charger Rallyes. It's rare. It was one of the strongest runners of 1972 and it should be getting more respect in the world of muscle cars. 🍌

“If you had to drive from New York City to Miami in 18 hours, the 440 Charger Rallye would have been a good choice for the task.”



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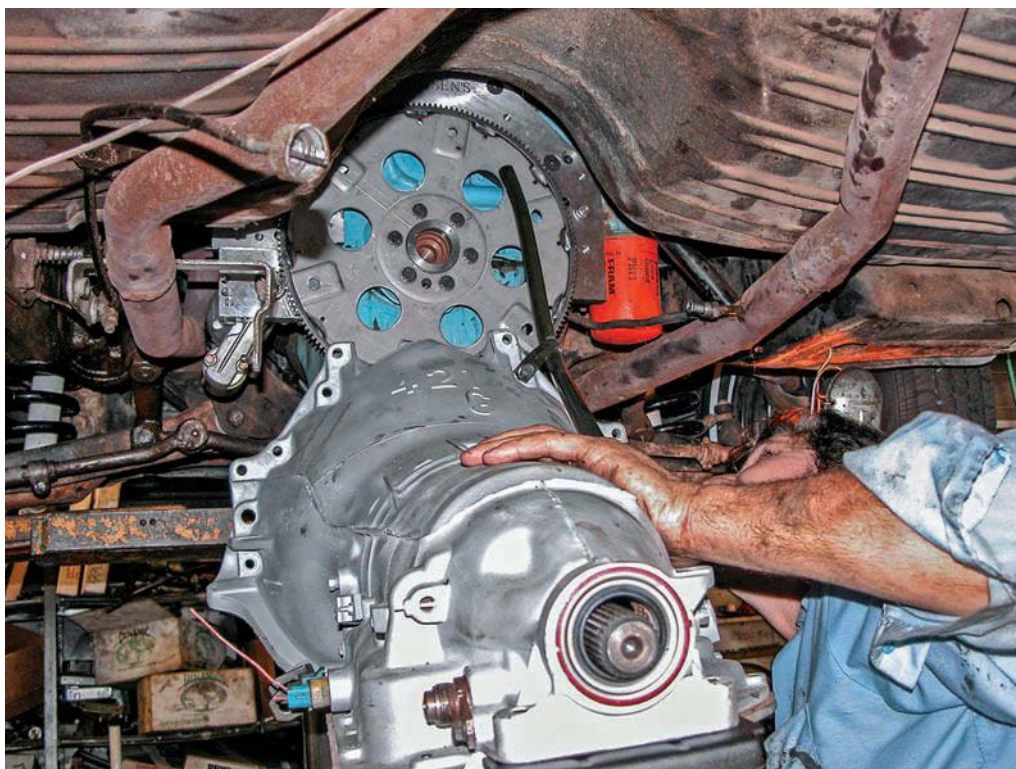
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THE JOYS OF OVERDRIVE

Converting to a modern automatic transmission expands the fun, comfort and driving range of vintage muscle cars

Words and photography by Barry Kluczyk

Before smartphones, you never thought you needed one—now you can't live without it. And there was a time when you had to go out to rent a movie and hope someone else hadn't already grabbed it. Netflix fixed that and even if it's not always perfect, we doubt you'd go back to the old method.

It's pretty much the same with automotive technology. We were reminded of that recently on a long drive to a car event, cruising the highway in a Camaro with the ubiquitous Turbo 350 three-speed automatic. After more than three decades of overdrive automatics, it was a little uncomfortable rolling down the highway at only 65 MPH and the tach needle hovering around 3,000 RPM. Little old ladies in Equinoxes were blowing by us at nearly 80 MPH, with the six-speed transmission in their cars keeping cruising RPM blessedly low.

Upgrading to an overdrive transmission is arguably the best restomod enhancement to be made to muscle car-era vehicles. By reducing the trans-

mission's top-gear drive ratio from 1:1 to something more like 0.65:1, drivability improves dramatically. Along with maintaining highway speeds with more reasonable cruising RPM, fuel economy jumps significantly, and engine wear decreases.

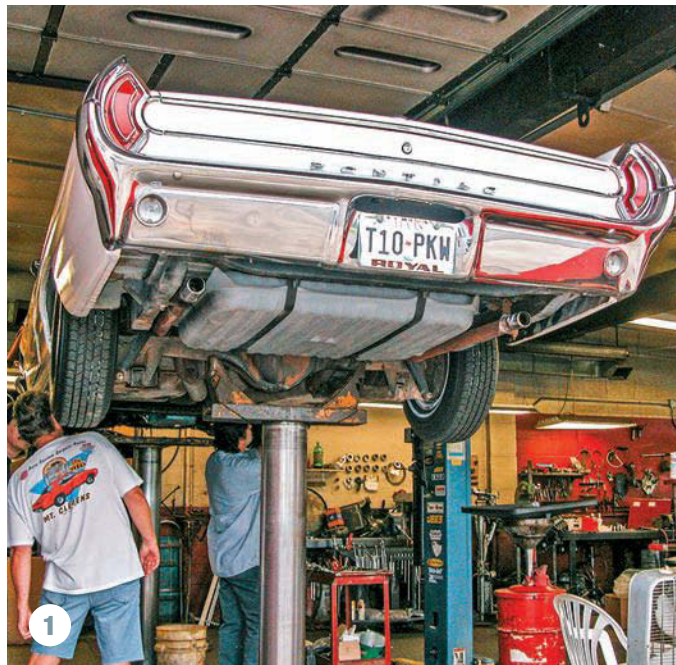
For most vehicles, facilitating the swap is a relatively easy project. Note that we qualified that statement with "relatively." We're not suggesting it's as easy as bolting on a set of Torq-Thrusts and a chrome air cleaner, but adapter kits are offered, and they typically include a crossmember, other mounting hardware and perhaps an adapter for the shifter or shift linkage. You'll likely need a new driveshaft, too, and some vehicles may require some transmission tunnel clearance work.

It gets a bit more involved with earlier engines that don't share the bellhousing mounting patterns of later transmissions. Ford's popular AOD transmission, for example, won't bolt up to the FE engine family, and Buick, Oldsmobile and Pontiac engines don't match the patterns of the

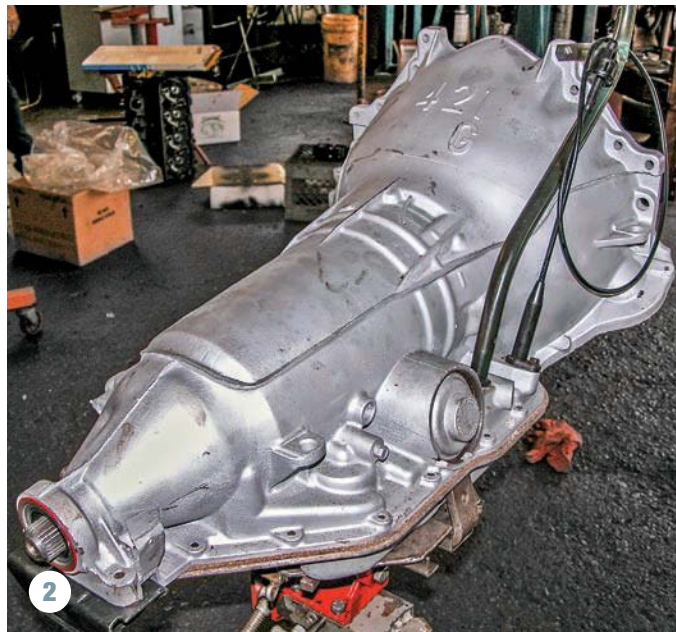
conventional GM 700R-4/4L60 transmission.

Again, there are a number of adapter kits to overcome such challenges, and this is a story involving one of them. It concerns the swap of a 200-4R into a 389-powered 1964 Pontiac, which was originally equipped with the two-speed Roto Hydra-Matic

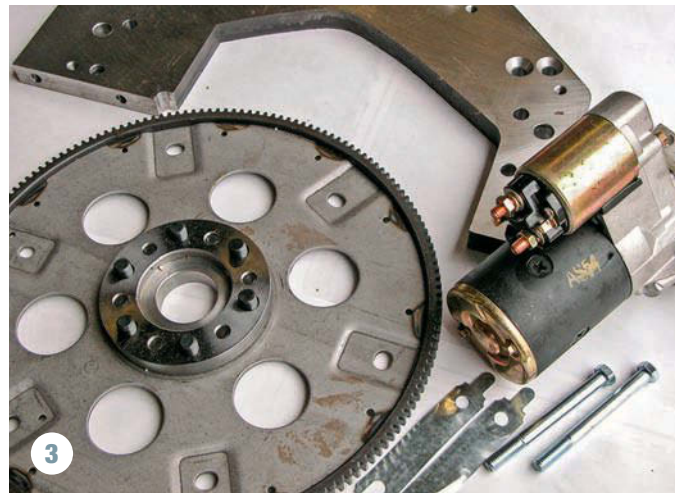
transmission commonly known as the "Slim Jim." The 200-4R is a stout transmission in most measures and was used during the 1980s in vehicles such as the Monte Carlo SS and turbocharged/intercooled Buick Grand National. It's just about the same length as a Turbo 350 and even the original Slim Jim.



1 Up on the lift and ready for the update is a 389-powered/"Slim Jim"-shifted 1964 Pontiac Catalina. Although some of the nuts and bolts may differ, the basic procedures featured in this project translate to many other vehicles of the era.



2 Replacing the Slim Jim transmission in the Pontiac project car is GM's Hydra-Matic 200-4R, which was introduced for 1981, with design roots that trace to the Turbo 350. In fact, its overall size and length are comparable to the TH350, which makes swapping one comparatively easy in a vehicle originally equipped with the Turbo 350 (or a Power-glide). It bolts right up to Chevy engines and other later "B-O-P" GM V-8s.



3 Unlike the Slim Jim, the 200-4R doesn't have a mounting provision for a starter, so this kit from Bendtsen's Transmission Center was required. It included an adapter plate, flexplate, starter and mounting hardware. The thickness of the adapter plate and the variance in length between the original trans and the 200-4R will require the driveshaft to be shortened.



4 Wrench turning commenced with the removal of the original, heavy-as-all-get-out starter. The adapter kit includes a lightweight, high-torque mini-starter, so this oversized relic has a date with a future swap meet.



5 Next, the transmission's rear crossmember was removed. Unlike some kits that require an all-new or custom crossmember, this will be reused.

Better still, the 200-4R—unlike the 700R-4—comes from the factory with a dual-pattern bellhousing, so it bolts right up to the Pontiac engine. There's a fairly significant "but" that comes after that, and here it is: The early Pontiac V-8 engine doesn't have a starter mount and neither does the 200-4R. The Slim Jim did, so an adapter is required after all.

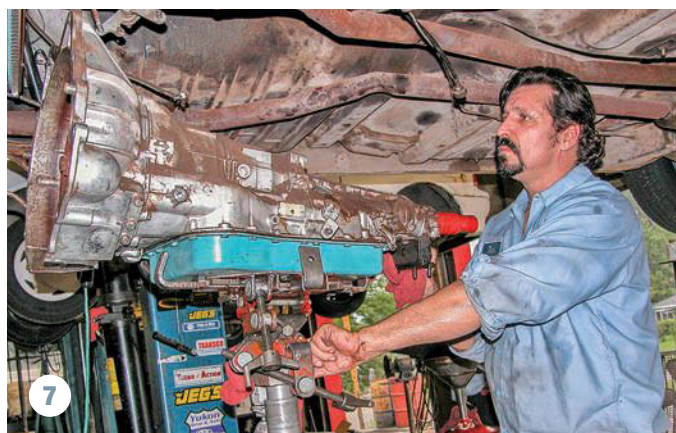
Bendtsen's Transmission Center, in Ham Lake, Minnesota, had the solution in a kit that included the necessary mounting adapter for the transmission, as well as a flexplate, crankshaft spacer, starter and additional hardware. The kit lists for \$795, and we should note it works with other GM transmissions such as the 700R-4L60 series, too.



6 With the transmission secured with a sturdy jack, ancillary items such as the speedometer cable, shifter linkage and cooler lines were disconnected. The driveshaft was also removed.



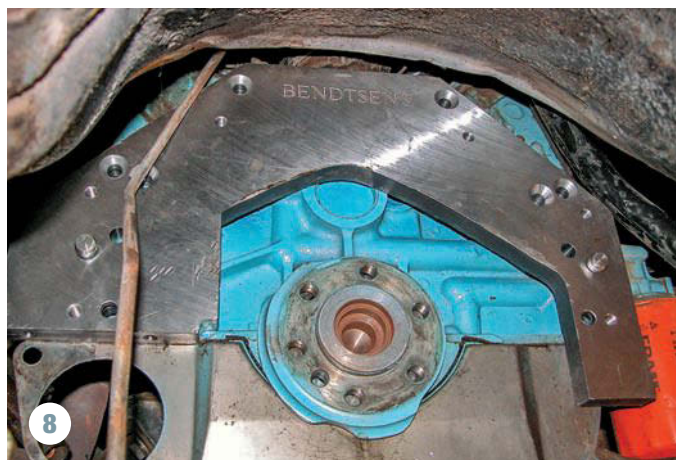
9 Dowels included in the kit must be pressed into the adapter plate to locate the transmission.



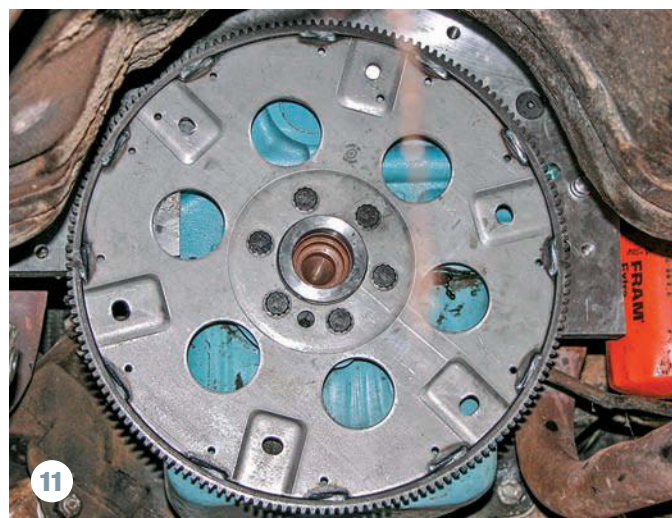
7 After double-checking all the lines and linkage components were out of the way, the old Slim Jim transmission was removed. Although it's not an overdrive transmission, the overall design and performance is comparable to modern automatics—and it also has a lightweight aluminum case.



10 The kit also includes an adapter that mounts to the crankshaft. It positions the new flexplate to accommodate the width of the transmission adapter plate.



8 After the rear of the engine was cleaned and checked for any obvious signs of other issues such as a rear main seal or oil pan leak, the kit's adapter plate was positioned for a quick test fit. It lined up perfectly.

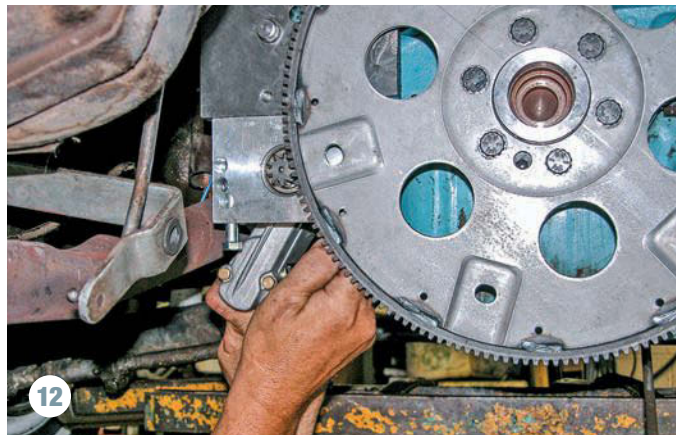


11 And after the crankshaft adapter was installed, the flexplate was simply bolted to it. Simple stuff, so far.

Installation chores were handled by Fraley's Transmission in, appropriately enough, Pontiac, Michigan—a shop with nearly 60 years of history. As the accompanying photos illustrate, the project was straightforward and within the realm of even moderately experienced wrench-turners. It's also a restomod project that doesn't give a thing away to the car's original appearance.

After only a couple of miles behind the wheel of the newly overdriven Poncho, the realization of its greatly expanded capability sunk in. It could go farther on a tank of gas while humming along at modern freeway speeds.

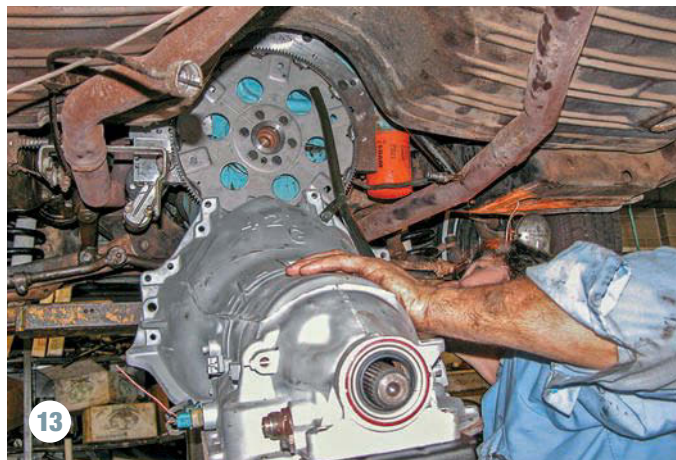
It opened up a whole new world, and we wouldn't go back for anything. 🇺🇸



The new mini-starter came next, mounting behind the flexplate, on the adapter plate, rather than on the transmission, as was the case with the original Slim Jim transmission.



Not only is the 200-4R a little longer than the original trans, but the adapter plate pushed it back in the chassis slightly, too, requiring a new mounting position for the rear crossmember. To accomplish this, the transmission mount was first bolted to the transmission, and then the crossmember was slid into place along the C-channel-type frame rails.



Finally, the 200-4R was lifted into place—a task made much easier with a professional transmission jack. Nothing beats the right tool for the job.



When the correct position for the crossmember was determined, new holes were drilled into the frame, and it was simply bolted in place. Again, simple, so far.



The Slim Jim transmission was indeed slim, and the 200-4R proved a bit bulkier after it was installed, requiring some of the lines to be rerouted or even re-bent. The tunnel didn't require any clearance-making hammer work, but the new transmission was definitely a tight fit.



After the crossmember was bolted into place, the transmission mount was finish-welded to it. That procedure completed the basic installation, but the project wasn't quite finished.

QUICK COMPARISON: GM'S 200-4R VS. 700R-4

The 200-4R was introduced in 1981, and its design roots lie in the Turbo 350, while the 700R-4 debuted in 1982 and was renamed 4L60 in 1990. It offers comparable performance characteristics to the 200-4R, but it's a longer transmission and, compared to the Turbo 350-based 200-4R, its swap into an older vehicle requires a new crossmember and a shorter driveshaft. In the 700R-4/4L60's favor is economy of scale. They were made in the millions and for much longer than the 200-4R, so used examples are plentiful and cheap. The 200-4R is getting a little harder to find these days.

Some suggest pre-1987 700R-4 transmissions are more problematic than later editions, but that's not a universal belief. Higher-torque versions of the



GM Hydra-Matic 4L60 series transmission.

family include the 4L65-E and 4L70-E, which have five-pinion gear sets versus the 4L60's four-pinion design, for enhanced strength.

By the way: General Motors changed the name of the 700R-4 to 4L60 as part of new naming convention that continues to-day. The "4" stands for four-speed, the "L" for "longitudinal" (i.e. the north/south orientation of the powertrain in a rear-drive vehicle), and "60" indicates the relative torque capacity. The "E," when used (i.e., 4L60-E), designates electronic controls. It's the same convention for the latest Hydra-Matic 8L90 eight-speed offered in the C7 Corvette and all-new 2016 Camaro SS.



A shorter driveshaft was required, and, fortunately, Fraley's Transmission had one of the approximate length lying around their shop. So, the U-joints from the stock shaft were cut off to merge with the replacement shaft. We also lucked out because the output shaft of the 200-4R was the same as the Slim Jim and its driveshaft.

Here, the "new" driveshaft receives its swapped U-joints. Of course, careful measurements ensured the length was perfect. Measure twice and cut once.



Another detail required to complete the swap was a flexible dipstick for the transmission fluid. We grabbed a universal part from the local speed shop.



Next, all of the linkages, cooling lines and the speedometer cable were connected. The 200-4R doesn't have electronic controls, so there wasn't an issue with the speedometer hook-up. Using a late-model, electronically controlled transmission such as the 4L60-E requires a converter box to translate the electronic speed signal for the mechanically driven speedometer in a vintage car.




The last step in the project was arguably the most important: the installation of a throttle pressure cable under the hood, which replaced the original vacuum modulator. It controls the transmission pressure, which is critical for proper shifting and the longevity of the transmission, because getting it wrong can potentially burn up the 3-4 gear-change clutch pack. It's a necessary part of the swap for just about all modern overdrive transmissions, including the 700R-4 and even the Ford AOD. The cable must be adjusted so that it is pulled out fully at wide-open throttle, while at idle it's out approximately $\frac{3}{8}$ -inch to $\frac{1}{2}$ -inch. 🛠️

SOURCES:

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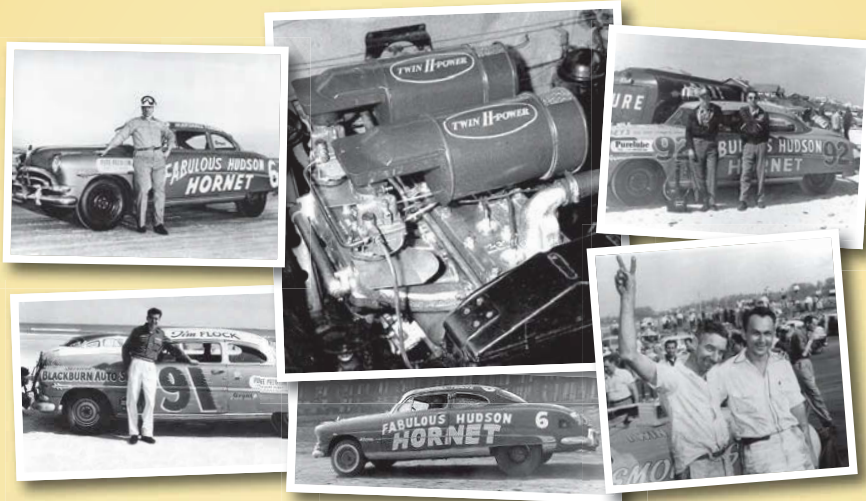
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COMET R

We get familiar with Craftsman's approach to the all-purpose hot rod



By Terry McGean

Photography by Matthew Litwin and Terry McGean

This was a new experience for us. Being handed the keys to a freshly built hot rod and told to hit the road, without any accompaniment from handlers, builders, trailers or anyone other than a few of us staffers setting off to take a trip. This could either be a whole lot of fun or an absolute nightmare.

Project cars from aftermarket performance parts companies have become a fairly standard sight at events around the country, and quite often, those cars are used in competition and on road tours, as “pro-touring” type cars, and driving events geared towards them have grown in popularity. But to

see a muscle-era car built into one of these all-purpose machines by a major retail brand is far less common. So how did the company that produces the tools found in so many of our shops build a '65 Comet? And why?

Think of it as high-performance marketing. People who build performance cars, whether professionally or just for a hobby, need tools, so building a vintage car and then thrashing it would seem an excellent way to connect with those enthusiasts.

How it all came together has a lot to do with the crew at Hot Rod Chassis & Cycle Works, the



Addison, Illinois, shop that created the Comet. Kevin Tully and Chad Hill of Hot Rod Chassis and Cycle (HRCC) had already built a GTO for a corporate client, a '64 model commissioned by Raybestos, which handily survived thrashing on road courses and drag strips by pro-level drivers and media hacks alike.

More recently, the crew at HRCC created another street-friendly '60s machine that was also suited for track time with a 1964 Valiant. Dubbed *Violent*, the Plymouth was also the first product of HRCC's new race car division, Skunkworks.

Actually, when Craftsman came calling, the directive was to build a "rockabilly hot rod," says Kevin, adding that a red flag went up almost instantly. "We interpreted that to mean a traditional hot rod, but the time frame for the project was really too short for that. We explained that the muscle-car segment is really hot, especially pro touring, where people get out and actually drive the car, hard."

After successfully selling the Craftsman folks on the idea of a muscle-era car, Chad made the suggestion that it be a mid-'60s Comet.



"We wanted to do a Ford product, and rather than a Mustang, or even a Falcon, we selected a Comet. You don't see them much, but they're beautiful cars and they share a lot with more common models," said Chad of the motivation behind the decision, adding that the model's competition history was also a factor.

This one would draw its race-track attitude from the original days of the SCCA's Trans-Am series, with low-slung stance, wide tires all around and the ability to attack a road course with aplomb. The plan for the Comet, after its debut at the SEMA convention, was for road miles and corner carving. Drag strip passes would factor in, but the bulk of its competition driving would happen in autocross events, possibly with some occasional road course time.

That's a formula plenty of magazine readers have been fed over the past dozen years or so in project car intros, and while the quest for a "do-it-all" hot rod seems a reasonable pursuit, there are contradictions built in even before the first wrench spins. A suspension tuned for able cornering tends not to lend itself to drag launches, and any vehicle focused on either form of racing is usually a total compromise on the street.

But this was not new territory for Kevin and Chad, who also felt it was important that this project should take a path that a somewhat

Fiberglass lift-off hood maintains period flavor, though it's a pity it conceals the aesthetically appealing Hilborn Individual Runner injection; electronic controls make it quite streetable. Custom Weld wheels draw inspiration from Indy "Drag Mags."

skilled home builder could accomplish in his own garage with a typical set of tools and a welder, in keeping with the spirit of the traditional Craftsman tool user.

First, they needed a car. After setting their sights on a '65 model, a suitable subject was located and acquired, requiring only a new set of floorpans. The drivetrain and suspension condition were of no consequence—they wouldn't be staying.

Though Carroll Shelby and plenty of other Trans-Am racers made the early compact Ford independent front end and leaf-sprung rear work on the racetrack, they would have probably changed it if the rules had allowed. With no such restrictions and a vast aftermarket to

source, Kevin and Chad looked to Ridetech, an outfit they've worked with in the past.

For the front, the stock suspension was removed entirely, along with the intrusive shock towers that crowd the engine bay. In its place, a Mustang II-style independent suspension was mounted, though none of the components of this system are actually from a Mustang II. Instead, the basic architecture of the "MII" served as the foundation upon which the aftermarket could evolve and improve, and this particular version is based on a JW Rod Garage crossmember, selected because it was designed specifically for the Falcon/Comet chassis. It's wider than an actual Mustang II piece, and it's accompanied by a Flaming River

Comet builder Hot Rod Chassis & Cycle Works and race car division Skunkworks, created the Comet R to participate in driving events; naturally, Craftsman tools are onboard.





Interior sticks to the basics, though Stewart Warner gauges now fill the dash bezel. New ProCar seats look period correct but still offer support, while Hurst six-speed shifter falls right to hand; small crank adjusts brake bias.



power-steering rack unit, which is also wider than the original Ford MII unit. The tubular control arms are from Ridetech, as are the coil-over shocks that stand in for the coil springs and standard tube shocks of the original Mustang II design. A Ridetech 1¼-inch adjustable anti-roll bar was also utilized.

In the rear, the leaf springs were jettisoned and replaced with a Ridetech four-link suspension. This particular system was made for bolt-in installation, using trailing links that attach between the factory leaf-spring hangers and bolt-on axle mounts that attach to the leaf-spring pads. A tubular cradle mounts between the unit-body frame members and serves as the mounting point for the upper

links—the only welding required is for the tabs that will locate the upper links on the axle housing. Ridetech offers its four-link with air springs or, as utilized here, coil-over shocks. The 9-inch Ford-type rear axle housing was built by Moser Engineering, and could have been ordered with the Ridetech four-link mounts already welded in place, but Kevin and Chad opted to use the leaf-spring style housing with the bolt-in brackets, in keeping with the home-garage build theme of the project.

What, then, to power this reconfigured '60s refugee suitably for both track work and the open road? The digits "4-2-7" resonate with fans of '60s Ford performance, and the Comet nameplate has history





ft. torque capacity, yet still providing slick shifting and, in this particular configuration, a 0.50:1 top overdrive to knock down even steep rear gear ratios for relaxed highway cruising. Hydraulic linkage connects a McLeod RST twin-disc clutch to the stock pedal.

Inside, the vintage race car theme is most apparent, with a pair of simple low-back buckets and no rear seat. Those buckets have a period look, but are actually new items made by ProCar, a division of Scat Enterprises. The Pro-90 Lowback can be ordered with headrests, but in the '65, they look right without them—they're also surprisingly comfortable. Stewart Warner Deluxe gauges fill the spaces in the factory dash bezel, and a Flaming River tilt column puts the period-styled steering wheel where you want it.

The flash was saved for the outside, where a custom paint scheme is highlighted with a traditional Craftsman logo and a pair of "meatballs" with the number 14, here signifying the year the car was constructed. The livery was inspired by classic Craftsman toolboxes, pairing metallic gray with rich red for the desired effect. Accenting the build is a set of specially produced custom wheels, designed by Chad in conjunction with Weld Racing. Chad used a set of vintage Indy-brand mags his father had purchased in the '60s for inspiration. The machined centers of the new wheels are intricate, and even include raised pads with the Craftsman logo mimicking the cast-in labels of vintage mag-

with the legendary FE-based 7-liter V-8, but using one here would have been completely impractical. First off, the real thing is scarce, and highly prized, making it something of a budget buster. New engine blocks, heads, cranks and so on could all be sourced to create a modern-day side-oiler, but again, not cheap. Plus, FE engines are physically large, requiring plenty of engine bay space; they also tend to be a bit heavy.

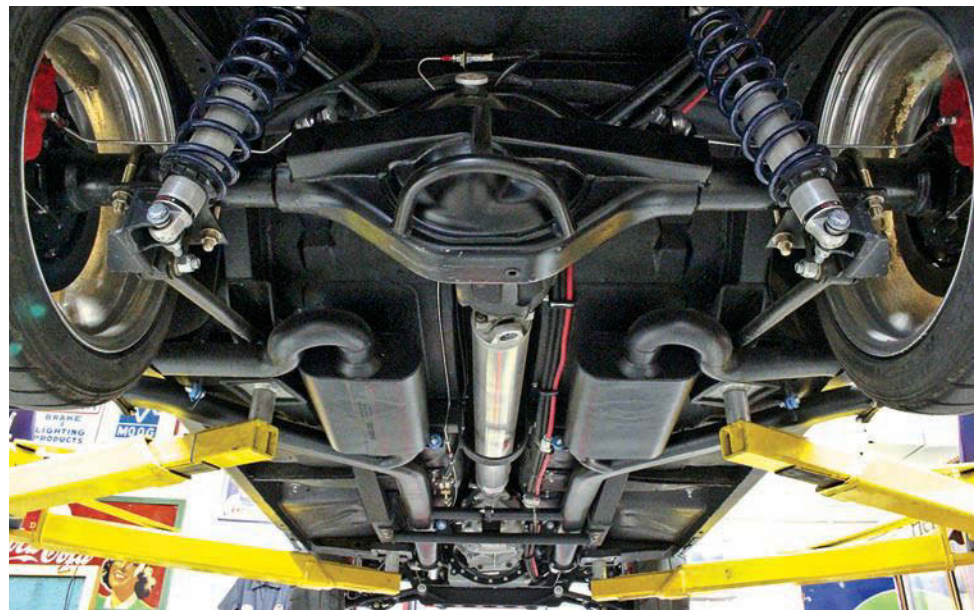
Here again, the modern aftermarket offers alternatives, this time in the form of a different kind of 427. Roush Performance, the performance parts arm of the noted racing outfit, offers crate engines that use dyno-tested recipes to achieve their claimed output. Among them is the 427R, a 351 Windsor-based package that's built on a Dart Machinery Iron Eagle block. By combining a 4.120-inch bore with a 4-inch stroker crank, you get 427 inches of Ford power in a smaller, lighter package.

Roush ships the 427R with a Holley four-barrel on an aluminum dual-plane intake, but Kevin and Chad had different ideas for the

induction system. Electronic fuel injection was part of the plan all along, but making it even more interesting is the Hilborn Individual Runner intake manifold, providing the eight butterflies of a classic mechanical injection setup, but using electronic injectors instead. A Holley HP programmable control unit makes it work. When the hood comes off, the eye-candy effect is palpable, drawing anyone with even an inkling of mechanical inclination in for a closer look. The engine hasn't been dyno-tested with that induction system yet, but Roush rates the 427R at 550 hp with a single four-barrel.

The simple solution to back that engine would be to mount a stout automatic—even modern overdrive units can handle significant power these days, and they're relatively easy to merge with old cars. But the Comet would have to have a clutch pedal—that was non-negotiable. The HRCC team went right for the Tremec T-56 Magnum, a six-speed manual that traces its roots to the Dodge Viper, offering impressive durability with a mammoth 700-lb.

The Comet's factory suspension was completely replaced with a modernized Mustang II arrangement up front and four-link in the rear; coil-over shocks mount at each corner. Side-exit exhaust runs through Flowmaster mufflers, until the dumps are uncorked.



nesium racing wheels. These are 18-inch, however, wrapped with modern Nitto performance tires.

All in all, the completed package, christened Comet R, looked great sitting on the show floor at SEMA last November, but expecting it to work, and reliably, out on the road was another matter entirely. With extensive modifications and a fair level of reliance on electronic engine controls, we were skeptical, but it didn't take long for that to start melting away.

Our trip began in central Pennsylvania, and following an afternoon's worth of local driving, we boldly headed out to Philadelphia, venturing right down to South Street for cheese steaks. A breakdown on these narrow, heavily travelled roads would not win us many friends, but the Comet just motored on, the injected Windsor making plenty of noise and vibration, but never complaining or faltering. The trick suspension, said to be fitted with road-race springs, was a bigger surprise. It should have beat us into submission, yet the stiffness wasn't nearly as harsh as expected—at no point did anyone feel the need to take a break from the Comet.

And there was plenty of driving, from Philly on to more tight side streets in the trendy waterfront hamlet of Hoboken, New Jersey, where the Comet's continuing tractability gave us the stones to drive through the Lincoln Tunnel into Manhattan, a feat that would require Port Authority intervention if something were to go amiss.

It never happened, nor did it as we bumped up Manhattan's west side, up and over the George Washington Bridge and all the way back to home base in Bennington, Vermont. About 450 miles in all, with the only real fatigue coming after many miles of talking over the roar of the minimalist side-exit exhaust. It felt kinda like *Two-Lane Blacktop* for a while, but tended to be a bit of a conversation killer. A minor complaint after spending so many hours inside a car like this.

What about the actual performance? Those measures are yet to come. We're scheduled to take the Comet R to several big events this summer with the intention of hitting the autocross course and probably a drag strip or two as this story continues. 🏁

1965 MERCURY "COMET R" SPECIFICATIONS

ENGINE

<i>Block Type</i>	<i>Dart Iron Eagle based on Ford 351 Windsor with 9.5-inch deck height and four-bolt mains</i>
<i>Cylinder Heads</i>	<i>Roush aluminum with 2.08/1.60-inch valves</i>
<i>Displacement</i>	<i>427 cubic inches</i>
<i>Bore x Stroke</i>	<i>4.120 x 4.00 inches</i>
<i>Compression Ratio</i>	<i>10.25:1</i>
<i>Pistons</i>	<i>Forged</i>
<i>Connecting Rods</i>	<i>H-beam</i>
<i>Horsepower @ RPM</i>	<i>550 @ 6,250 (with Roush-supplied Holley four-barrel and intake)</i>
<i>Torque @ RPM</i>	<i>535 @ N/A (with Roush-supplied Holley four-barrel and intake)</i>
<i>Camshaft Type</i>	<i>Hydraulic roller</i>
<i>Lift/Duration</i>	<i>Proprietary Roush profile: specs not disclosed</i>
<i>Valvetrain</i>	<i>Stainless steel 2.08/1.60-inch valves, dual valve springs, 1.6:1 roller rocker arms, 7/16-inch studs</i>
<i>Induction System</i>	<i>Hilborn Individual Runner Injector with eight throttle bodies and electronic fuel injectors managed by Holley HP programmable electronic control unit</i>
<i>Fuel System</i>	<i>Aeromotive Phantom in-tank fuel module mounted in stock Comet tank; Aeromotive fuel pressure regulator</i>
<i>Lubrication System</i>	<i>Wet sump with Roush 8-quart front-sump pan and Hamburger remote oil filter setup</i>
<i>Ignition System</i>	<i>Crane small-cap electronic distributor and Hi-6R control box</i>
<i>Cooling System</i>	<i>Meziere remote-mount 42-gph electric water pump mounted to custom C&R Racing aluminum radiator with SPAL brushless electric fan</i>
<i>Exhaust System</i>	<i>Hedman Hedders full-length tubes into custom dual system with side-exit cut-outs and Flowmaster Super 40-series mufflers</i>
<i>Original Engine</i>	<i>Ford 289-cu.in. small-block</i>

TRANSMISSION

<i>Type</i>	<i>Tremec T-56 Magnum six-speed manual with Hurst shifter</i>
<i>Ratios</i>	<i>1st 2.97:1</i>
	<i>2nd 2.10:1</i>
	<i>3rd 1.46:1</i>
	<i>4th 1.00:1</i>
	<i>5th 0.74:1</i>
	<i>6th 0.50:1</i>
	<i>Reverse 2.90:1</i>

DIFFERENTIAL

<i>Type</i>	<i>Moser Ford-type 9-inch with limited-slip</i>
<i>Ratio</i>	<i>3.90:1</i>

STEERING

<i>Type</i>	<i>Flaming River rack and pinion with power-assist</i>
<i>Ratio</i>	<i>15.0:1</i>

BRAKES

<i>Front</i>	<i>Wilwood 12.5-inch disc with six-piston aluminum calipers</i>
<i>Rear</i>	<i>Wilwood 12.0-inch disc with four-piston aluminum calipers</i>

SUSPENSION

<i>Front</i>	<i>Independent short/long arm Mustang II-style with JW Rod Garage crossmember, Ridetech tubular control arms, Ridetech adjustable coil-over shocks and Ridetech 1 1/4-inch anti-roll bar</i>
<i>Rear</i>	<i>Ridetech four-link type with tubular lower trailing arms and angled tubular upper arms, Ridetech adjustable coil-over shocks and Ridetech 3/4-inch anti-roll bar</i>

WHEELS AND TIRES

<i>Wheels</i>	<i>Weld Racing custom-made "SR-78" aluminum</i>
	<i>Front 18 x 8 inches</i>
	<i>Rear 18 x 10 inches</i>
<i>Tires</i>	<i>Nitto NT05</i>
	<i>Front 225/40-18</i>
	<i>Rear 295/35-18</i>

PERFORMANCE

Not yet tested



FULL OF HOT AIR

Q: Should I be concerned with air intake heat from a radiator? My project is a '97 Camaro SS manual six-speed with a 383-cu.in. engine fitted with an F1A Procharger and many other mods. I use a Be Cool aluminum radiator with Evans NPG coolant media and lots of fan suction. There is a lot of heat in the engine compartment.

Brad D.
Via email

A: Yes, you should. Engines that breathe hot air make less power and are more prone to detonation (pinging). It is your goal to make sure the air intake has access to the coolest air possible. The problem is that the under-hood area of a modern car, especially when equipped with a supercharger, is extremely cramped and has little to no air flow. In addition, all of the components act like heat storage batteries and absorb the high temperature. This is called heat soak.

There are two things that you can do. The first is to try and plumb the air intake so it can pull outside air. The other is more aggressive, and you may not want to do it. I would louver the hood so that the heat can escape. A professionally installed set of louvers up each side of the hood, over the rocker covers, would look nice (in my opinion) and be functional in letting some of the heat out. There are other tricks, such as coating the headers, etc., but they are only really effective on a drag car that makes a run and then leaves the hood open for cool down. A street car is going to get hot under the hood no matter what you do.

1976 NOVA REMAKE

Q: I have a '76 Chevy Nova two-door hatchback with a 305 V-8 and an automatic transmission. Even though it has power front disc brakes, I'd like to go with four-wheel discs. Can I use a '70s Firebird

Trans Am set-up? Will it fit under stock-width 15-inch rally wheels? (I'm currently using black 14-inch "Rally Mags" from a 1980s S10 pickup.)

I'd also like to rebuild the engine. With 225,000 miles, it's still running great, but compression is down some, and I'm ready to make the commitment. I want to replace the two-barrel with maybe a Holley 4150 four-barrel. Do I need a "shift kit" to keep the transmission shifting smoothly? I just assumed that since my little V-8 has such a small horsepower rating, I wouldn't need to make any adaptations—I believe the same transmission was used with the optional 350 for that year.

Going with a four-barrel means dual exhaust, but I don't have a whole lot of room underneath. The stock set-up is a small, simple catalytic converter with a single muffler (mounted horizontally behind the rear axle). I know a great shop that does custom exhaust, so I'm hoping they can solve any problems.

My idea was to use a hot rod dual-exhaust single performance muffler, mounted the same way with two small glasspacks behind two converters. Maybe the catalytic converters could be together, with a small heat shield above to help keep them running at peak performance.

Chris Hansell
Cupertino, California

A: Respectfully, I get the impression that this is your first modification project on any car. I will base my advice on that assumption or that you have limited experience doing modifications. If I am incorrect, please accept my apology.

When it comes to brake-system modifications, you need to keep in mind that it is more complicated than just switching from a drum set to a caliper. Often, the master cylinder, proportioning valve and the lines need to be changed, and we can't forget about getting the emergency brake to function. The other concerns are as you mention.

For this reason, I usually suggest using a kit from a brake system supplier, since you then have the best chance of getting it all to work with the least amount of aggravation. This said, still plan on the possibility of encountering some obstacles in getting everything to work properly. Bear in mind, too, that this is usually not just a few hour swap, so make sure that you have the necessary tools, a place to work and access to another vehicle for as long as the

conversion takes.

With regard to the engine, you say it has low compression but mention no numbers. Did you perform a compression test or are you just assuming that? If the engine is tired, as you suggest, then there is no reason to convert to a four-barrel carburetor. Your money is better spent on making it right.

At this juncture, the exhaust is the last decision that you need to make. You can have a four-barrel with a single exhaust, so do not think that it is a must.

What I would like for you to do is to determine the true health of the engine and then contact me again. Once we know what we are up against, as well as how much time, effort and money you are willing to invest, I can steer you in the best direction.

ENGINE BRAKING

Q: Ray, your column is the first thing I read each month. I thoroughly enjoy it because your explanations are so easy to understand. I also loved your column in the March issue (HMM #139) on small-block V-8s. I have a 1956 265-cu.in. V-8 in my workshop waiting to go into a project.

My question pertains to my 1999 GMC K1500 4WD pickup with 5.3-liter EFI V-8 and automatic overdrive with 105,000 miles, but also could apply to any internal combustion engine.

I have some land and a cabin on top of a mountain in West Virginia. My property is 2.5 miles off the hard surface road and, at 2,500 feet elevation, is fairly steep to reach. When descending while the road is dry and not slick, I'm always in 2WD with the transmission in drive, and I'm using my brakes almost constantly.

I'm always tempted to put it in low gear and let the engine help with the braking, but I remember years ago hearing that you shouldn't do that because of undue wear on the engine, possibly wearing on the valves or valve guides or seals.

What is your take on it?

Bob Donaldson
Edgewater, Maryland

A: I appreciate your kind words and that you enjoy my column.

Engine braking is a viable tool to help control a vehicle when going down a steep grade. The thing to do is to place the transmission in the lower gear at a speed that will not momentarily lock-up the rear wheels and shock the drivetrain and engine. It is better to use the brakes to slow the truck and then drop the

transmission down a gear or two.

Depending on the grade, you will have to use the brakes to keep the engine RPM under control. It is not advisable to allow the engine speed driven through the drive wheels to reach 4,000 RPM, or so, without a combustion load on the top of the piston. The potential that a connecting rod could stretch over time and "kiss" a valve with a piston is always in play, but it would be rare with a domestic V-8. Still, it only needs to happen once. This practice, however, will have no impact on the valve guides or seals as you thought.

I suggest that, if possible, next time you are on that road, bring the vehicle to a stop and then manually downshift the transmission and see how it behaves. You may find that third gear is better than second gear, or vice versa. You need to learn the drivetrain and how it responds to an over-run condition on a grade. I do this with all my vehicles, then I know when it is safe to drop the lever a gear, even on a strange road. There is a hill coming into town where the speed limit is 45 MPH and the police are vigilant. I know that I can safely drop a gear there and travel the road at 43 to 46 MPH with no brakes or concern for a ticket.

ALL FOULED UP

Q: I own a 1970 Mercury Cyclone Spoiler with a 429 Cobra Jet, an all-original numbers-matching car.

My problem is that the number 1 and 6 spark plugs keep fouling after 20 minutes of running at a hard drive. The compression is 235 in all cylinders. Also, a little smoke is coming out the rear exhaust. The engine was rebuilt professionally and has 34,000 miles on it.

My thinking is that, most likely, they put in soft valve seats when it was rebuilt, so it could run on 93 unleaded octane, though now I use 100 leaded octane.

Kevin Muldowney
Orlando, Florida

A: The first thing we need to do is determine how the plugs are fouling. Is it oil or gas related? Gasoline can be determined by smell, while oil fouling will be obvious on sight. Does the engine break up when the plugs are fouled? I would assume so, with that being the impetus for you discovering it.

You make no mention of how the engine runs when the plugs are not fouled, so my advice will be based on a good idle quality and no driveability issues.

If you get on the car and then release the throttle and that is when the smoke is produced, then I feel that there is a valve seal or guide issue on those two cylinders. Most likely, it is a dried-out seal and not the guide. When the throttle closes at high RPM, the vacuum in the cylinder goes up, and if the valve seal is poor, the high level of vacuum will suck oil past the guide. It usually needs to be pretty bad to foul the plug, though.


If the oil is leaking from the seal, the

plug will usually be discolored on the side that faces the valve. I would put two fresh plugs in and then do what you must to foul them. Take them out and examine for discoloration.

If I am correct and it is the valve seals, you can change them with the heads on the engine. You will need to crank the engine so both valves are closed and then keep air pressure (around 100 psi) in the bore via the spark plug hole. I like to have the piston on TDC when I do

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By Tom Comerro

Photography courtesy of the manufacturers



HMM PRODUCT TEST: KRC POWER STEERING FLUID

Power steering fluid is not something we give much thought to — so long as the correct type of fluid is being used, most of us tend to think that's sufficient. However, when we recently received a release on a new "racing" power steering fluid, we were prompted to call the company for further insight.

KRC Power Steering has been building power steering systems for racing vehicles for quite some time and has garnered a vast resource of information in the process, enabling the company to offer products that serve racers aptly and provide excellent durability and reliability under extreme conditions. In a conversation with us, company president Ken Roper explained that there were once power steering fluids on the market that had been developed for racing that performed quite well, but then went out of production. During testing by KRC, the remaining synthetic fluids, most of which had originally been formulated for production cars, began to show signs of diminished performance after only one or two extreme heat cycles. This led KRC to work with specialists in developing its own high-performance steering fluid.

The new KRC fluid is able to provide proper hydraulic operation while maintaining its lubrication properties and also running at lower temperatures than typical steering fluids. Ken advised that, ideally, a racing steering system would be flushed of existing fluid and then filled with the KRC product. The KRC fluid is clear so that contamination can be spotted easily.

We don't have a test lab, but we were able to flush and fill the steering system on a road-race car that sees use in six-hour endurance events employing only a factory-type power steering cooler. After purging the system of old fluid and topping off with fresh KRC, we ran a two-day event, noting consistent steering feel throughout and fluid that still looked fresh at the end of the weekend. The cost for the racing fluid is more than off-the-shelf products, but not by an unreasonable margin, and considering the heat that even a stock production car can generate in the steering system during a ½-hour road course session, it seems an excellent safeguard for vehicles that are driven hard. — **Terry McGean**

Cost: \$14.95 per quart

Contact: KRC Power Steering, 800-451-1074, www.krcpower.com

SAFE SLEEVES

If you have wiring, lines or cables to protect from extreme heat sources, DEI's Titanium Protect-A-Sleeve may provide a solution. Extreme heat can be generated by hot exhaust manifolds and headers, but these

sleeves will protect most radiator and heater hoses from harsh conditions. They come in 2-inch x 36-inch and 1-inch x 48-inch lengths and are also sold in bulk by the foot. The sleeves are packaged as kits that include high temperature, military-spec DEI-branded heat shrink tubes. Cost: \$55.99 and \$45.99, respectively. Contact: Design Engineering Inc., 800-264-9472, www.designengineering.com



BATTERY BARRIER

Thermo Tec's heat barrier wrap is

designed to protect your car's battery from both extreme-cold and high-heat conditions. The mat is said to reflect over 90 percent of radiant heat up to 2,000 degrees Fahrenheit, neutralize battery acid and be easy to install. With an adhesive-backed heat barrier and carbon-mat insulation, it measures 8 x 40 inches, for a universal fit that will work with any battery. Cost: \$33.38 MSRP. Contact: Thermo Tec, 800-274-8437, www.thermotec.com



RETRO REARVIEW

Classic Industries offers a new rearview

mirror that brings a custom touch to '70s and '80s GM cars. Finished in chrome, the mirror has the look of those equipping GM cars of the 1960s, and provides excellent rearward visibility. The day/night mirror features a 10-inch surface, chrome housing, gray rubber cushion edge, a satin-silver arm support and universal button-style mount. The mirror is designed to fit several GM cars and trucks including 1970-'81 Camaro, 1970-'86 Firebird, 1973-'79 Nova, 1970-'90 Impala/Caprice and 1972-'76 GM trucks. If you're looking to mount the mirror to a new windshield, the mounting plate and adhesive are sold separately. Cost: \$49.99. Contact: Classic Industries Parts & Accessories, 855-357-2787, www.classicindustries.com



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The ShowCase is a storage shelter from CarCapsule that seals your car away from dust, dirt, corrosion, mildew, dings, odors and pests, while still allowing it to be displayed. The ShowCase provides ample protection, yet it never touches the car. Supported by heavy-duty inflatable columns, the front panel zips open and away, so the car can be driven in or out. The side panel zips open as well, allowing walk-in access and enabling vehicle doors to be opened without interference. The air inside is exchanged with filtered outside air three to five times per hour, keeping the internal temperature consistent and preventing moisture from condensing on the vehicle. Visit CarCapsule's website for a video demonstration and technical specifications. Cost: \$1,495 MSRP. Contact: CarCapsule, 219-945-9493, www.carcapsule.com

MUSTANG MOUNT

Scott Drake now offers a 289 motor mount master kit for use in 1964-'65 Mustangs and 1965 to early 1966 Shelby G.T. 350 Mustangs. The kit includes everything needed for a K-code 289 "Hi-Po" Mustang and replace the original Mustang engine mounts, which fail quickly when exposed to extreme torque and horsepower. The mounts are said to be exact copies of the originals, and the kit includes lower cast-frame brackets, intermediate brackets, upper engine brackets, main rubber mounts, donut rubber isolators and all of the hardware required for an easy installation. Cost: \$449.95. Contact: Scott Drake Store, 800-999-0289, www.drakeautomotivegroup.com



DASHING FOX

The restoration offerings for later-model Mustang owners have just broadened again, as Classic Dash has expanded its dashboard panel line for Fox-bodied Mustangs to include 1987-'93 model years. Manufactured in-house from UV-resistant ABS composite material, the panels are available in matte black, brushed aluminum and carbon-fiber finishes. You can get the plain dash or have it outfitted with a full line of Auto Meter or Thunder Road gauges and a wiring kit. Each panel comes with two 3-3/8-inch openings for the tach and speedometer, plus four 2-1/16-inch spots for the auxiliary gauges including oil pressure, water temperature, voltage and fuel level among others. The pads are easy to install, as they are bolt-in replacements and accommodate factory accessories and trim. Cost: \$159 (no gauges) and starting at \$729 (with gauges). Contact: Classic Dash, 866-882-3525, classicdash.com



SUSPENSION CORRECTION

Late-model Mustangs offer handling ability well beyond what would have been expected from a stock model in the '60s, but there is still room for improvement. Maximum Motorsports can help enhance the straight-line traction, cornering grip and ride quality of your 2005-2014 Mustang with its new bolt-in brackets. The new mounting positions of the brackets relocate the rear lower control arms, enabling easy adjustment of the instant-center location upwards and rearwards to compensate for the loss in anti-squat caused by lowering a newer Mustang. The configuration allows the rear tires to move backward when striking a bump, instead of moving forward. The design maintains the stock Panhard rod location, clears the factory anti-roll bar and most direct-replacement aftermarket anti-roll bars while accepting either stock or direct-replacement control arms. No welding or modification is required. Cost: \$199.97 (pair). Contact: Maximum Motorsports, 888-378-8830, www.maximummotorsports.com



CAMARO UPDATE KIT

American Autowire now offers a complete wiring update kit for 1974-'77 Camaros. The kit replaces the vehicle's wiring harnesses from bumper-to-bumper and is designed to work well in stock or modified applications.

Extra-long wire lengths for custom routing and full-color instructions and schematics are included. This complete kit affords many benefits with regard to your vehicle's lighting, fusing, switches and instrument cluster. For a complete rundown of everything you see here, visit American Autowire's site and search for part number 510567. Cost: \$599. Contact: American Autowire, 800-482-9473, www.americanautowire.com

By Jay Meeks and Ed Heys
Photography courtesy of Jay Meeks

FULL-CIRCLE PONTIAC

Sometimes, you *can* go home again

For me, cars are a passion and certain automobiles hold a special place in my heart. Often when I see an old car, memories of good times from my youth come rushing back. That remote region of my brain that stores away the good things—people, places and events—and filters out the bad takes over whenever I think of certain cars. Automobiles that excite us the most are usually the cars that were popular when we were teenagers. My rule of thumb about what made a car cool was simple: Anything with four doors had two doors too many, and anything with six cylinders had two cylinders too few.

The 1978 Pontiac Firebird Formula 400 below is a true survivor, just like its first owner, my father-in-law, Thomas “Mickey” McGuyer. You’d have to know Mickey

to realize what a perfectionist he is.

Mickey, who is now in his nineties, is a member of the Greatest Generation. He grew up in the coal mining community of Providence, Kentucky. To escape the poverty of the region, he joined the Navy at age 17. While stationed at the Banana River Florida naval base, he met 16-year-old Marjorie at a community dance, and after a brief courtship—with her mother’s reluctant permission—they married. Mickey went to war, and Marjorie went back to high school. Mickey retired from the Navy in 1964, they settled in coastal Georgia, and have now been together 73 years. Early on, Marjorie accepted that she married a certified car nut.

On March 7, 1978, Mickey was driving past Pat Bachrodt Pontiac-GMC in Brunswick, Georgia, when he spotted a new

black-and-gold Pontiac Firebird Formula on the lot: It was love at first sight for him. The W50 Appearance Package in gold against the Starlight Black paint, Carmine Red interior and 400-cu.in. engine, set this car apart from the pedestrian Firebirds and ubiquitous Trans Ams with their plastic wheel-opening flairs and mythical phoenix on the hood. Mickey went home and couldn’t stop talking about the Firebird. He told Marjorie that it was the most beautiful car he had ever seen. Finally, Marjorie told him to take her to see this car just to shut him up. At the dealership, Mickey immediately began to fret about how he needed to be realistic and not splurge on this car.

Meanwhile, Marjorie looked the car over, then told the salesman to get the paperwork ready, because she wasn’t going home without buying that car for him.

This was also the year that I married Mickey and Marjorie’s daughter, Linda, who had the deepest blue eyes that God ever created. Her beauty was striking, and when we met I knew I had found someone very special. I think we both knew we were meant for each other, and after dating only a few months, we married. Linda inherited her beauty from her mother and her love for reading and appreciation for cars from her dad. She loved sporty cars. She enjoyed driving them, but washing and maintaining them was something in which she had absolutely no interest. She always laughingly said that that was what she had me for.

In 1991, due to illness, Mickey knew that he could no longer care for the Firebird as he once had. He’d always logged everything that was ever done to it—not only all maintenance and oil changes, but every time it was washed and waxed. He recorded every gallon of gas that went into the car, and he didn’t stop there. He calculated the average mileage for each tank and recorded the pump price of premium unleaded. Mickey knew how much Linda and I liked the car, so he gave it to us.

I drove the car to work daily and maintained it as Mickey had. I enjoyed the car, but in 1993 we bought a Corvette convertible and ran out of garage space. I



Linda and Jay Meeks in 1991, Linda in 1998, and Mickey McGuyer’s 1978 Formula 400 in 1978.

tried to give the Formula back to Mickey because he was doing very well after recovering from his illness. He told me that he had given the car to us, and if we wanted to sell it, he was fine with that. Little did I know, he was saying that for our benefit, as he really didn't want the car to leave the family.

In 1994, I advertised the 36,500-mile Formula in Hemmings Motor News, and it sold right away to a couple in Illinois. The car changed hands twice in Illinois, with one of the buyers being a speculator who placed the car for sale in 2002.

I cannot count the number of conversations Mickey and I had about the Formula as time went on. I told him that of all the cars I've owned, the Formula is the only one that I truly regretted selling. Over the years our conversations would usually migrate to the Formula and how much he enjoyed that car. I always knew that if I could correct the mistake I made almost 20 years earlier, I would do so.

But priorities change in an instant. On September 19, 2012, the love of my life died suddenly from a heart attack at age 64. Linda was the most unlikely heart attack victim you could ever imagine—she was a fit woman who walked every day and ate right. I mention this to warn others to never ignore signs of heart disease. I'll spend the rest of my life dealing with why I didn't push Linda to get another opinion after a doctor told her there was nothing wrong with her heart when she went to the emergency room with chest pains. She died three weeks later, and my sorrow in losing Linda is at times beyond description. I know at some point my sadness will turn to only pleasant memories of the life and love Linda and I had.

Several months prior to Linda's passing, I had searched the Internet for the Firebird. She knew I was trying to find the Firebird and she was okay with that. Despite having the VIN and some helpful contacts, I came up empty. One day I searched online, found several rusted hulks and was worried that one of those sad examples was our beloved Formula.

Then I spotted it. There was the red in-

PONTIAC: 1978 Formula, a/c, a/t, ps, pb, AM-FM 8-track, 400 ci engine, unused Space-Saver spare with original air canister, 37,800 one family adult driven miles, black and gold exterior, always garaged, this car is in original, beautiful condition, records include each washing and each gallon of gas used since new, perfect drive or show, \$6,750 obo. 770-344-4736, GA.

Date	Mileage	Gals.	Pric.	Total
12-4-78	4118			
12-15-78	4218			
12-30-78	4312	10.5	55.9	
1-17-79	4434	7.5	59.9	
2-8-79	4557	11.0	63.9	
2-16-79	4674	11.9	65.9	8.00
2-25-79	4743	5.5	69.9	3.50
3-9-79	4860	10.2	69.9	2.07
3-22-79	4981 (6.1)	8.8	69.9	6.13
3-30-79	5074 (14.3)	9.25	71.9	6.65
4-8-79	5170 (13)	7.6	72.9	5.56
4-16-79	5257	7.4	72.9	5.40
4-24-79	5351 (14)	7.5	76.9	5.77
5-1-79	5437	6.4	78.9	5.10
5-19-79	5548 (11.0)	9.2	80.9	7.28
5-26-79	5713	10.3	82.9	7.20
6-4-79	5816	7.5	82.9	7.00
6-18-79	5906	6.3	88	5.50
6-26-79	5981	6.0	90	5.39
7-10-79	6077	8.56	90	7.70
7-30-79	6191	9.26	92	8.51

13 mpg Over 11
92 to 94
Done 12/22/12
15/1/13
13.22
13.02
840

18.57 Feb.
18.36 Mar.
16.55 Apr.
17.89 Jun.
16.20 July

Gas	gal	mi.
4/13/02	12.032	58,068
4/19/02	13.696	58,241
8/02	21	58,529
1/02	10.818	58,689
1/02	10.647	58,880
2/02	13.9	59,086
8/02	17.1	59,328
1/4/02	6.95	59,417
1/16/02	10.38	59,598
6/21/02	9.82	59,754
8/9/02	11.12	59,919
NEW OWNER		8/15/02
8/15	7.25	60,047
8/15	8.82	60,225
8/17	7.16	60,346
8/24	10.62	60,507

Mickey McGuyer documented every aspect of his car's maintenance from new; Jay Weeks and subsequent owners followed suit.

terior and the unique side molding, and I immediately knew it was the same car—it looked the same as it did almost 20 years earlier! The image was from a Pontiac Trans Am Forum website. I emailed the administrator of the site who put me in touch with the owner, Joe, who stated that he had no interest in selling the car.

After Linda passed away, I emailed Joe and told him how much I would like to buy the car. Not only as a part of Linda's legacy, but I wanted to get the car back while Mickey was still with us. I wanted him to be able to drive the Formula again.

I did not hear back from him, so in November 2012, I went to the Moultrie, Georgia, automotive swap meet and spotted a 2000 Trans Am, NHRA Special Edition, six-speed with less than 15,000 miles. I really liked the car and decided to buy it, mainly as a small diversion that might be therapeutic in coping with Linda's death. When I returned home, I had a voice mail from Joe saying that, after talking it over with his family, he would sell me the Formula. What a heartbreaking moment for me. I had to call him back and tell him that I had already bought another car. Over the next several months I just could not get past the idea of somehow getting the Formula back home, so I set my plan into action.

I sold the Trans Am and called Joe to tell him my offer still stood. He said to

give him some time to think it over, but he called that night and agreed to sell. I was thrilled. Acting on blind faith, I sent him a cashier's check for the full amount without seeing the car. I could tell that Joe was an honorable person and loved that car as much as I did, and I could not have asked for a more perfect custodian of this car for the past 11 years. Joe was as excited about this car returning to its original family as I was. The 2000 Trans Am was sold, and the '78 Firebird arrived in Georgia.

I called Mickey and told him I'd sold the Trans Am for something special, which I'd drive over for his approval.

When Mickey saw the Firebird, he threw his arms outward and exclaimed, "It's just like the one we had!" He walked up to it and said, "It even has a red interior!" That's when I realized that he didn't know it was the same car. As he walked up to it he pointed to the block lettered FORMULA decal on the front bumper and said, "Ours didn't have that." I was certain that the decal had always been there, so I said, "I'm pretty sure it did." He just shook his head a little without saying anything to let me know that I was wrong. After looking at old pictures, I realized he was right: someone had added the decal. He then walked along the driver's side of the car and put his finger on a small dent just above the side molding and looked at me without saying anything. In 1979 he



Jay Meeks showed his 1978 Formula 400 at the 2015 Amelia Island Concours d'Elegance.



had driven the car to the mall, and even though he had parked at the far edge of the lot, someone had opened a car door against the Firebird out of sheer evil of the heart.

He continued to walk along the car, taking in every line and nuance and talking constantly about what a great-looking car it was and how much it reminded him of the one we had. When he got to the back of the car, there was the "400 C I" vanity plate that I had bought in the early '90s. Again, a puzzled look came over his face. I told him to pull down the license plate to reveal the fuel filler. There on the back of the license plate bracket in his own handwriting was "21 Gal. Capacity."

His thoughts thus confirmed, I have never seen a human being as happy as he was at that moment, and I was just as delighted for him. I said, "Let's go for a ride!"

As we rode, I told him the whole story about how I was able to reacquire the car. He said, "You have made my day! No, you have made my year!" We drove for miles that day enjoying an experience that could never be duplicated.

While I can't bring my beautiful Linda back, there's something I can do: I can bring some happiness to her father, the original owner of this wonderful automobile, and to myself as well. When Mickey and I ride together, I know Linda will be smiling down and giving her approval. She will be with me in spirit every time I drive the car, but she still won't be there when I wash it. That's what she has me for. 🍷



Jay Meeks and Mickey McGuyer celebrate the happy return of Mickey's 1978 Pontiac Formula 400 after a 19-year separation from the family.

Do you have photos of your favorite or former muscle car and an interesting story to tell? Please submit your memories, photos and contact information to Muscle Car Scrapbook, c/o Hemmings Muscle Machines, attention: Ed Heys, P.O. Box 2000, Bennington, Vermont, 05201, or e-mail Ed Heys at ehays@hemmings.com.

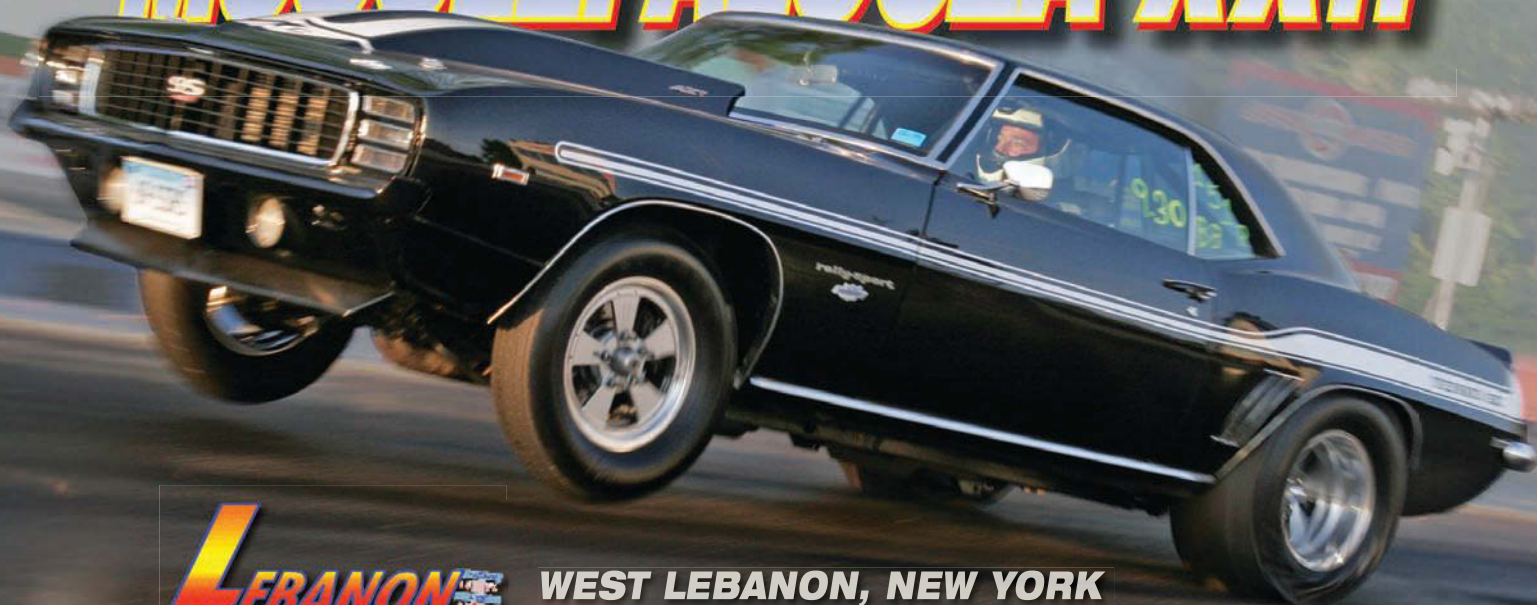
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Bracket Racing Time Trials: 10:00 a.m.
Eliminations: 1:00 p.m. • Trophies awarded

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Hemmings Judges' Choice
Registration closes: 12:00 noon • Judging: 1:00 p.m.

• **All-American Cars ***

Event is open to all domestic street legal muscle cars
in sound, working order.

ENTRY FEES AND ADMISSION

CAR SHOW ENTRY FEE: \$15.00

RACING & CAR SHOW ENTRY FEE (1 car/driver): \$40.00

RACING ENTRY FEE: \$35.00

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(Open to qualifying candidates) A real crowd favorite! Stock-appearing, tweaked and tuned muscle cars run head-to-head dragstrip shootouts pulling into the 10s!

• **Trophies Awarded**

1st Place & 2nd Place awards for: Chevrolet, Ford, Late Model Ford, Buick, Pontiac, Oldsmobile, Late Model GM, Plymouth, Dodge, Late Model Mopar, AMC, and Modified Muscle, plus Best Engine, Best Paint, and Best in Show. Plus your chance to have your car appear in *Hemmings Motor News* or *Hemmings Muscle Machines*.

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SELF-MADE SPEED

Vintage iron is still being warmed up and pushed hard at the Jalopy Showdown

Before people could walk into a dealership, lay some money on the counter and drive off the lot in a car that could hold its own on a track, they built them.

Sure, in those early days, fast cars were being constructed in limited numbers for use in races like the Indianapolis 500 and various grands prix in Europe, and there were even a few powerful production wagons being made for the wealthy, but the average American who hankered for speed and competition was left to his own devices.

Usually working with the least expensive automobiles available, these early hot rodders designed and often fabricated solutions themselves for improving performance. Sometimes, they would swap in parts from other makes and models, and when they could afford to, some bolted on equipment from the budding aftermarket, from companies like Frontenac, Offenhauser, Miller, Riley and Rajo.

We have the enthusiasm of these early builder/drivers—made obvious by their considerable efforts, ingenuity and eagerness to race—to thank for serving as proof to the automakers that some of us would be very interested in them making cars that we could compete.

Traditional hot rods, especially when they're competed, almost require that their owners learn some of the old crafts. This track car (right), powered by a fast four, was entirely hand built by Troy Quinn of Mertztown, Pennsylvania.

Now nearly 100 years later, one would think that time and hard use would have left very little of this ancestral iron around. Such rarities would certainly be sealed up in museums, viewed from behind velvet ropes and handled only with white cotton gloves.

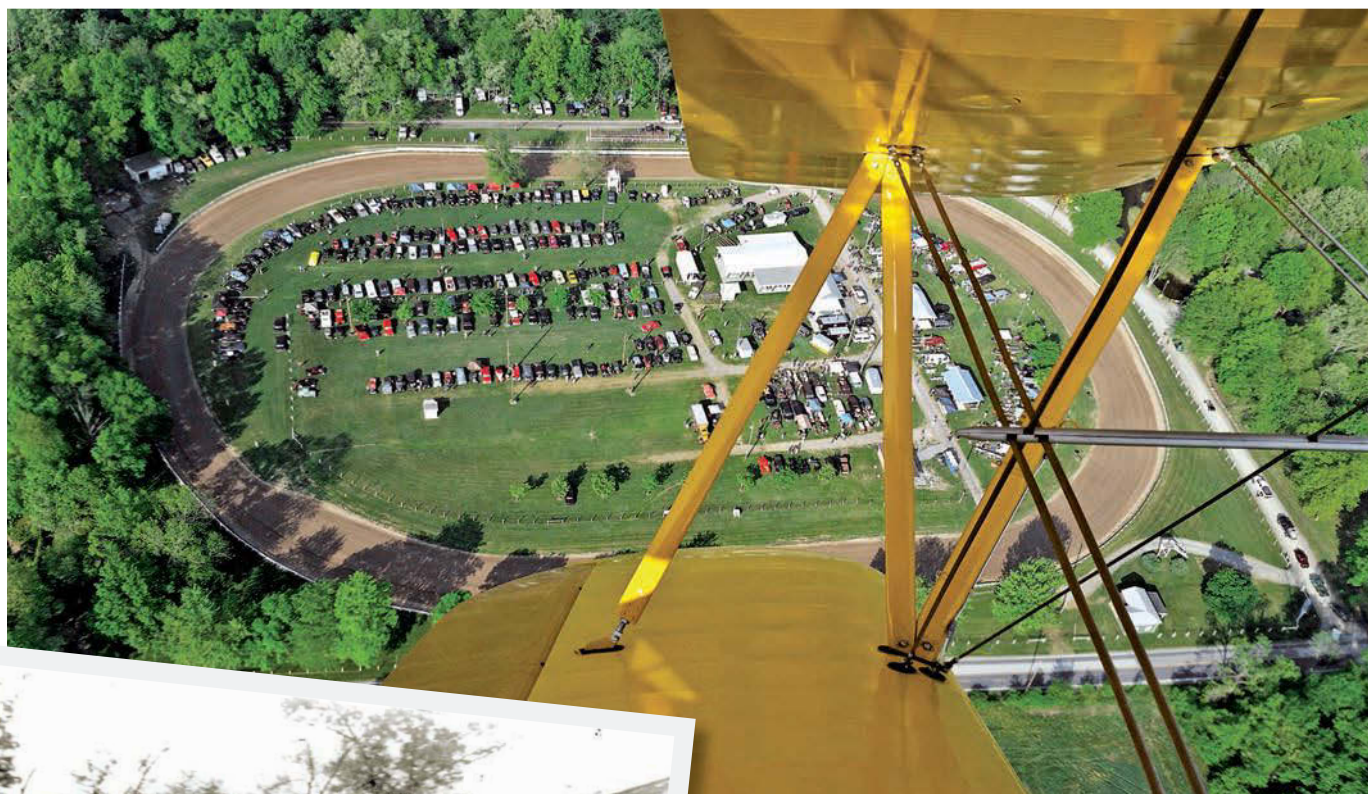
However, that's not quite the case. While some examples of this machinery are indeed exhibited in museums, many still exist "in the wild" as restorations. A surprisingly large number of original chassis, bodies and driveline and performance components are also extant, often brought together in reproductions of particular historical cars or in new but period-correct takes on what was being built in those old days.

The owners of these vintage race cars have much in common with the original pioneers of performance: ingenuity, tenacity, a reverence for craftsmanship, often shoestring budgets and an unquenchable desire to race.

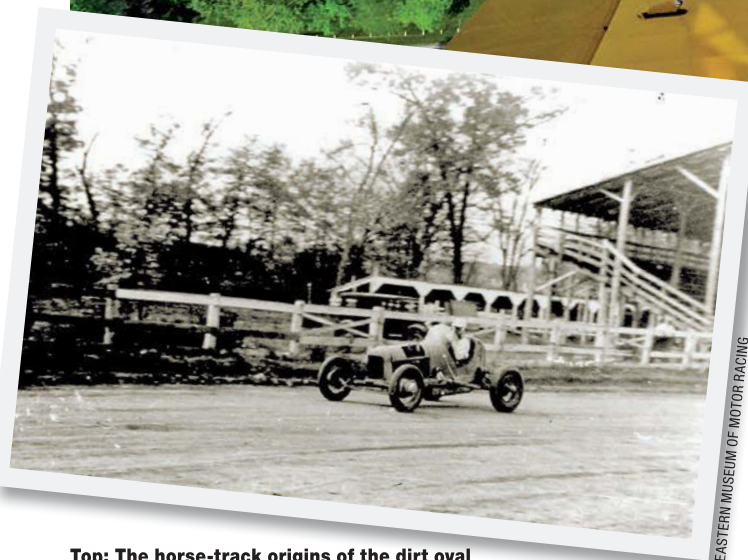
And race them they do, on ad hoc dirt tracks in the backwoods and at more public venues celebrating vintage motor sports like the Jalopy Showdown in York Springs, Pennsylvania.

Held every May since 2003 on the revived Latimore Valley Fairgrounds' dirt track originally built in the Twenties, the Showdown is not a race, per se. It has been likened to a (very) fast parade, a reenactment and living history. While there is no





MARY ELLEN THOMSON



EASTERN MUSEUM OF MOTOR RACING

Top: The horse-track origins of the dirt oval at the Latimore Valley Fairgrounds are clear, especially when viewed from a 1943 Stearman biplane. Aware of the track's racing heyday in the Twenties and Thirties (above), 83-year-old Bob Frutiger, builder and driver of #3 (right), points out with a wink, "Both the car and the driver are correct to the 1930s!"





Sounding like a bunch of B-25s, these roadsters roar around turn three. Dan Youngs, 30, leads in his hot four-cylinder “coupster.” He asserts the age-old hot rodder’s dictum: “It’s a never-ending quest for more performance.”

score keeping, there is undoubtedly some good-natured score settling.

The annual Showdown includes a swap meet, car show and corral, metal-shaping demonstrations, live music, food, and of course, lap time. It was created by Larry Garland as something for traditional hot rodders and to raise money for the Eastern Museum of Motor Racing, but, judging by how much fun these (mostly young) folks have wrenching on their old iron and hot shoeing around the track, events like these might just be the salvation of the old-car hobby. 🛠️

Michael Fairservice, 21, belts himself in as his dad, Dave, looks on. The Showdown is one of the few times Michael has raced publicly, and he appreciates it. “I’ve just been ripping around a field on our property,” he says.



Left: The Showdown isn’t all sprint cars and roadsters; drivers and fans also get a taste of the dirt-track stocker days of Junior Johnson and Red Byron.



Heading hard into the corner are veteran vintage racers Zach Suhr, in his recreation of his great uncle’s #44 car, correct down to its wagon-wheel roll bar; and E.J. Kowalski. Both roadsters are banger powered.

Do you enter your vintage racer or muscle car in some form of motorsports? Submit photos or digital images, comments and contact information to Vintage Racers, c/o *Hemmings Muscle Machines*, P.O. Box 2000, Bennington, Vermont 05201 or e-mail J. Daniel Beaudry at jbeaudry@hemmings.com.

For more coverage of the Jalopy Showdown, including many great photographs, go to blog.hemmings.com and type “Jalopy Showdown” in the search box.

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POWER TRIP

From daily driver to quarter-mile maven to autocrosser, this Mach 1 does it all

Laura Campagne-Gregorits insists that her first memory as a child was her father being the first guy in Erie, Pennsylvania, with a Mustang in 1964. It was a green coupe, she recalls. And when she got her first car years later, it was a '67 Mustang she paid \$700 for. She followed that with a '68 and later a '70, before moving up to an '88 LX.

And then something entirely unlikely happened to the Harrisburg, Pennsylvania, resident—she got into Mazda Miatas. But, her husband Vincent fixed all of that about nine years ago when he spotted a 2003 Mustang Mach 1 at a dealership and brought Laura back to check it out. “I had a real nice little Miata that was just about paid for,” says Laura. “I looked at it and said, ‘That’s a muscle-car Mustang. Gas is four dollars a gallon. Are you crazy?’ I had a paid-off car that was good on gas. He said, ‘No, no, no! Go test drive it.’ Well, I didn’t want to give it back then at that point.”

At first, Laura didn’t do anything special with the Mustang except drive it. And

she apparently didn’t even treat it very well. “This Mach 1 was my daily driver, literally going back and forth to the job. I swear I didn’t even wash it for three years. I just liked using it because I had no idea it was anything special. And then, people were telling me that I might have had something special.”

And Laura’s Mach 1 is special. Almost since the Mustang’s inception, Ford has trotted out various special-edition models, some of them legitimate high-performance icons, some of them mere appearance packages. The most recent Mach 1 fits the first category.

Sold only from 2003 to 2004 in the last years of the updated Fox platform, the Mach 1 used a retuned version of the 1999-2000 Cobra’s quad-cam 4.6-liter V-8. Tuned for more torque, the Mach 1’s mill received a 305-hp rating, down some 15 hp from the 1999-2000 Cobra, but with slightly more torque coming in lower on the rev range.

Rather than simply install the Cobra’s powerplant in the Mach 1, Ford heav-

ily revised the engine’s top end, using the intake cams from the larger 5.4-liter DOHC V-8 found in the Lincoln Navigator along with revised-spec exhaust cams. New exhaust manifolds were cast to work with the revised exhaust cams and subsequent flow changes in the cylinder heads. Despite that drop in power, the full 320-pound feet of torque hits at 4,250 RPM, some 500 RPM down from the Cobra’s 317-lb.ft. torque peak. The end result was a smoother engine with more real-world usable power. The magazine testers of the day still reported quarter-mile times from 13.8 to 14.0 seconds with trap speeds from 102 to 103 MPH—numbers only slightly better than they had managed with the ‘99 Cobra.

Ford engineers and designers also gave the Mach 1 a functional shaker hood scoop, which supplied part of the air for the hungry V-8. With more than a nod to the original Mach 1, Ford also provided plenty of flat-black trim and plastic for the hood scoop and accompanying stripe, the front and rear spoilers and the side accent



stripes. Inside, the leather interior featured a pattern also like the first versions of the car, though those originals were in vinyl. Gauges, too, harked back to early Mustang dials.

Since modern muscle cars are a bit more sophisticated and people expect them to turn with some alacrity, Ford re-did the GT's suspension for the Mach 1 as well, lowering the car about a half-inch, fitting stiffer springs, Tokico shocks and the front brakes from the Cobra. All four wheels featured vented discs, too, for better stopping power. With a governed top speed of 151 MPH, the Mach 1 proved as adept on a road course as it was fast on the drag strip.

Before getting into Mustang and sports car clubs and getting out onto the track, though, Mother Nature intervened. "A piece of slate blew off the roof during Hurricane Irene and had scuffed up the car a little bit," recalls Laura. "It gouged the spoiler, and a blowing trash can had scuffed up all the decals on it. And the transmission had gone out at almost the exact same time. I was having a bit of bad luck."

CJ Pony Parts, of Harrisburg, Pennsylvania, took the car in and returned it "like it was almost brand new," including rebuilding the automatic. After a little exhaust work, which her Mustang friends really admired, interest started growing in taking the Mach 1 to the track. "One of my customers from my hair salon told me about taking it out for autocross," says Laura. "I thought, well, that sounds like fun. I can try that. I was kind of terribly slow at first, but I got the hang of it. That was kind of fun."

But running SCCA Solo was not the end of it for Laura, who also likes to show the Mustang. When a charity event at Cecil County Dragway offered her the chance to tackle 1,320 feet in one go,



DNA PHOTOGRAPHY



Laura went for it. Other events at Beaver Springs Dragway and Maple Grove Raceway followed.

Clearly having been bit by the bug, but having only run in the 13s, Laura had the factory 3.55 rear gears swapped out for more aggressive 4.10s. She also ditched the regular radials for a set of Nitto 555ZR radials—not quite drag-racing tires, but very aggressive high-performance street tires also suitable for autocrossing. With the sticky Nittos and

the 4.10 gears, her best E.T. so far is an impressive 12.782 seconds and her best trap speed a skosh over 109 MPH—both numbers big improvements over the stock Mach 1 and impressive for a car with an automatic transmission.

"I have to give my husband, Vincent, credit," shares Laura. "He bought me the Mustang, and I don't know if that was to keep me out of trouble or into trouble. I definitely have the most patient, wonderful husband to support what I do. He's happy when I'm happy. He is totally supportive of me going to my events on weekends. He and my family won't come to watch because they get too nervous, but as far as being supportive, he is absolutely awesome."

Since the Mach 1 remains largely stock and since Mustangs never go out of style, Laura also continues to show the car when she's not out melting the rubber somewhere. But, she clearly enjoys running the Mach in anger: "Every time I go, I learn something, and I make new friends. I love that little adrenaline rush that you get from it, and I definitely get that. I live and learn. If it involves my car, racing and sounds like fun, then count me in!" 🖱️



Do you enter your muscle car in some form of competitive motorsports on a regular or semi-regular basis? No matter if it's drag racing, rally racing or anything in between: We'd love to hear from you. Print-quality photographs (or digital images), comments and contact information should be submitted to Weekend Warrior, c/o **Hemmings Muscle Machines**, P.O. Box 2000, Bennington, Vermont 05201 or e-mail Matthew Litwin at mlitwin@hemmings.com.



BARRETT-JACKSON

THE NUMBERS

TOTAL SALES: \$22,000,000+
 (8% buyer's premium excluded)
SELL-THROUGH: 98.3%
AVERAGE SALE: \$42,720
TOP MUSCLE CAR SALE:
 1987 Buick GNX: \$165,000

UPCOMING AUCTIONS BY BARRETT-JACKSON

DATE: August 6-8, 2015
 Location: Reno, Nevada
DATE: September 24-26, 2015
 Location: Las Vegas, Nevada
CONTACT: www.barrett-jackson.com

LEGEND

CONDITION:

1=Excellent; 2=Very Good; 3=Average;
 4=Poor; 5=Major Project

RESERVE:

Minimum price owner will accept

TOP BID:

The highest offer made
 (but vehicle did not sell)

SELLING PRICE: What the vehicle sold for

AVERAGE SELLING PRICE:

Average market value of vehicles
 in similar condition

Annual April Auction takes over
 West Palm Beach fairgrounds

Words and photography by Richard Lentinello

For those collectors, dealers and enthusiasts who can't make it to Scottsdale in January, Barrett-Jackson's annual auction in West Palm Beach, Florida, in April is the next best thing. Now in its 13th year, it was their biggest sale in Florida to date.

Compared to Barrett-Jackson's 2014 Palm Beach auction, the auction house saw a 30 percent increase in attendance and a 28 percent increase in the number of bidders. Most notable, however, was the incredible sell-through rate that passed the 98 percent mark.

For muscle car fans, however, the big news was the record-breaking sale of a 1987 Buick GNX that sold for a staggering \$165,000. This was GNX number 385, and it had only 362 miles showing on its odometer; essentially this was a brand-new 28-year-old car, with its original window sticker still in place. It was a time capsule of the finest quality, and we can see why someone would pay this kind of money to add it to their collection.

For the same money as the GNX, one particularly noteworthy Mopar, with the appropriate lot #426, was a striking, white 1969 Dodge Hemi Charger 500. Only 392 Charger 500s were built, and this example was one of the best.

Friday's auction saw some truly sensational deals, one of which was a gorgeous triple-black 1970 Dodge Challenger R/T SE that hammered sold for \$52,800. Other first-day deals included a red 1965 Corvette convertible for \$66,000.

Most admirable was Barrett-Jackson's Cars for a Cause program, which saw seven distinctive vehicles auctioned off, whose combined sales brought in an amazing \$966,000 for various nationwide charities. Each was a truly special sale.

To attend the 2016 Barrett-Jackson auction in Palm Beach, mark your calendar for April 11-13. Just fly into West Palm Beach International Airport, and you'll be five miles east of the South Florida Fairgrounds, and hundreds of truly remarkable collector cars.



CHEVROLET

Year: 1969
Model: Camaro SS
Condition: Restored/#2+
Reserve: None
Selling Price: \$42,900
Avg. Selling Price: \$45,000

If ever there was a totally honest car, this Camaro was it, a real gem of a find as it featured all its original body panels and floor pans, and had been the recipient of a rotisserie restoration. Everything about it was excellent, including paint and its matching green upholstery. All hoses and clamps were correct, as was everything else. The original matching-numbers 350 engine was professionally rebuilt as was its original Muncie M20 four-speed; even the original spiral shocks and smog system were rebuilt. Only the powder coating of the inner fenders, radiator support, engine pulleys and suspension parts was not factory correct, but it looked authentic to the untrained eye. The buyer scored big.



OLDSMOBILE

Year: 1971
Model: 4-4-2 (Replica)
Condition: Recreation/#3
Reserve: None
Selling Price: \$34,100
Avg. Selling Price: \$13,000 (Cutlass convertible)

Before this Cutlass Supreme was transformed into a 4-4-2 W-30 look-alike, it was just your average \$13,000 convertible Cutlass. But with a few high-performance options and authentic upgrades fitted, several potential buyers felt it was worth nearly three times its book value; welcome to today's collector-car market. Crazy? Perhaps. Then again, if you had to build a duplicate of this "W-30" convertible, it would most probably cost you well beyond what it sold for here. After all, it had a matching-numbers 350/TH-350 combo, and the proper twin-scoop W-30 hood and rear spoiler and appropriate striping. With its odometer showing 84,579 miles, this was a well-built A-body, and a convertible one at that.



PLYMOUTH

Year: 1971
Model: Duster
Condition: Modified/#3
Reserve: None
Selling Price: \$13,750
Avg. Selling Price: \$13,000

For relatively cheap money, you could have walked away with this well-sorted Duster. Ready for daily street use, it was fitted with an aluminum radiator, new BFGs and a rebuilt TorqueFlite. It was also upgraded with a rebuilt Six Pack setup featuring the correct Holley carbs and a rebuilt 340 block and cylinder heads. Running highway-friendly 3.23 rear gears, it was also equipped with power brakes and steering, bucket seats and an optimistic 150 MPH speedometer, though the tach wasn't working. The new yellow basecoat/clearcoat repaint was well done, but the color was not original to the car. There was also a minor crack in A-pillar. Showing 84,867 miles, this was a fun car for little money.



BUICK

Year: 1965
Model: Special
Condition: Original/#3+
Reserve: None
Selling Price: \$16,500
Avg. Selling Price: \$16,000

If you don't think you can get a great car for affordable money at a Barrett-Jackson auction, let us introduce you to this fantastic Special convertible. This car was in excellent condition, and as original as one could hope to find. Only a repaint that had too much orange peel ruined its appeal, but for those GM A-body fans, this car was a score. Powered by a 300-cu.in. V-8 and Super Turbine 300 two-speed automatic and fitted with a bench seat, it wasn't the most muscular Buick to be had, yet it was an ideal foundation for some performance tweaking—and it was a convertible. It had its original Protect-O-Plate and build sheet, and with new Firestone redlines, top and carpets, it was ready to go.



PONTIAC

Year: 1969
Model: GTO Judge
Condition: Restored/#2
Reserve: None
Selling Price: \$82,500
Avg. Selling Price: \$85,000

Although this Judge sold at market value, it was probably worth \$10,000 more as it was awarded Concours Gold at the 2010 GTOAA Nationals. Having a car judged by model experts, such as those GTOAA judges, adds more credibility to a GTO's status than had it been judged by a more broad-based organization. Nonetheless, this was an authentic Judge, and the subject of a four-year-long body-off, rotisserie restoration. Finished in the rarely seen combo of Palladium Silver and blue interior, it had a striking allure about it. Everything about its Ram Air engine seemed correct, with all the proper fittings and assembly markings. It had been driven only 69,068 miles to date. An honest car that sold at an honest price. Well bought.



CHEVROLET

Year: 1972
Model: Nova
Condition: Modified/#3
Reserve: None
Selling Price: \$25,300
Avg. Selling Price: \$21,000

The days of buying early '70s Novas for \$500 are long gone, and so are many of the cars, thus they have become quite desirable. This particular example was trimmed with the Rally Nova package and sold slightly above current market value, but for those few extra thousand dollars the buyer got himself a truly nice car that's ideal for regular street use. Powered by a four-barrel 350 and an automatic, it had power steering and brakes, factory A/C and dual exhausts. The slightly raised appearance and Cragar wheels gave it that period-correct look. The only negatives were aftermarket gauges and steering wheel, and too wide a door gap on the driver's side, although its black interior was perfect. Top money was paid, so the seller had to be happy.



FORD

Year: 1973
Model: Mustang Mach 1
Condition: Refurbished/#4
Reserve: None
Selling Price: \$15,950
Avg. Selling Price: \$15,000

Whoever wrote in the car's description that this Mustang was a recipient of a ground-up restoration truly had no clue what that term means. This car was rough. Although its odometer showed just 38,423 miles, you wouldn't have thought that by looking at it. The yellow repaint was incredibly poor and had lots of chips and orange peel, and most of the trim was in poor condition, as was all the chrome plating. However, the upholstery was very nice, and it did include its original Ford radio. Other pluses were that it was a four-speed 302 car with alloy slotted wheels and Ram Air hood. It truly looked great from 20 feet away, but we bet the B-J folks weren't happy with it when it showed up on their grounds.



PLYMOUTH

Year: 1967
Model: GTX
Condition: Modified/#3+
Reserve: None
Selling Price: \$42,900
Avg. Selling Price: N/A

For a well-restored Satellite 383 hardtop, about \$18,000 is all this car would be worth, but this was anything but your average Satellite. It was powered by a 440-cu.in. Commando V-8 that was dyno tested at 537 horsepower. Backed by a Pistol-Grip-shifted Tremec five-speed and 8¾ Sure-Grip rear, this was a truly remarkable GTX. Best of all, it looked stock, including its correct black Legendary interior, but with its Edelbrock intake and cylinder heads, aluminum flywheel, ceramic-coated Hooker headers and Scat rods, it must be an absolute blast to drive. The receipts alone totaled \$72,000, so we agree with the price paid; it simply would be impossible to duplicate this car for what it sold for.



PONTIAC

Year: 1975
Model: Trans Am
Condition: Refurbished/#3+
Reserve: None
Selling Price: \$27,500
Avg. Selling Price: \$22,000

We can see why the buyer bid this T/A beyond its current book value — it was an honest, solid car that had been well cared for. Aside from the headlamp bezels that were badly pitted, all else about this Firebird was first class. The door gaps were spot on, and the resprayed silver was nicely done. The new black interior needed nothing and the Hurst shifted four-speed was a huge plus. The 14-inch Rally wheels weren't ideal — or correct for this car — but those can be easily changed for the proper 15s, and everything on and around the matching-numbers 400-cu.in. V-8 seemed correct and authentic. With the correct 8-track stereo in place, this was a desirable F-body that needed almost nothing. Well bought.



DODGE

Year: 1969
Model: Dart
Condition: Modified/#3+
Reserve: None
Selling Price: \$43,450
Avg. Selling Price: N/A

Rarely are modified cars put together as well as this Dart was, yet because it was, it sold for the same money that an authentic 383 GTS hardtop would sell for. But the buyer got a heck of a lot for his money. How about a 478-cu.in. Hemi with dual Holley four-barrels on a cross-ram intake, headers, Wilwood front disc brakes, Pistol-Grip four-speed and beautifully finished bright blue metallic paint complemented by a tan interior that maintained most factory elements. Only the color-coordinated roll bar, dash-top tach and ancillary gauges below were the giveaways that there was more to this nice Dart, not to mention the matching carpet, wood-trimmed steering wheel and later model 'Cuda bucket seats. Good deal!



CHEVROLET

Year: 1961
Model: Corvette
Condition: Restored/#2+
Reserve: None
Selling Price: \$99,000
Avg. Selling Price: \$90,000

The amount of money that had been spent restoring this solid-axle Corvette had to exceed what it sold for; it was nearly that perfect. So how can one argue that the seller paid too much? He didn't. For his six-figure payout (after premiums) he received an authentically restored Corvette that can win first-place awards wherever it's shown, and mainly because of the extensive use of NOS parts instead of the more commonly used reproduction items. The placard stated that the paintwork alone cost over \$30,000; we believe it because it was flawless. The odometer read 39,828 miles, revealing that this Corvette had seen limited use. Best of all, it was a dual-quad 283/270 model, which made it even more desirable.



OLDSMOBILE

Year: 1984
Model: Hurst/Olds
Condition: Original/#2
Reserve: None
Selling Price: \$27,500
Avg. Selling Price: \$22,000

If I had a spare \$27K to spend, I would have bought this Olds in a heartbeat. It truly was in exceptional condition and as original as one could hope to find, and it had been driven just 10,276 miles from new. It was evident that it had always been well cared for; nothing under the hood was out of place or messed with and its Olds 307-cu.in. V-8 has barely been broken in. The upholstery and dash were perfect, as was its factory-applied silver paint. The Lightning Rods shifter of its automatic looked brand new, as did the car's trim, headliner, trunk and just about everything else. With so many G-body cars ruined by poor high-schoolers back in the day, it was refreshing to see one exactly the way Olds made it.



CHEVROLET

Year: 1970 **Reserve:** None
Model: Chevelle SS 454 **Selling Price:** \$64,900
Condition: Restored/#3 **Avg. Selling Price:** \$62,000

The only thing that separated this SS 454 from an authentic LS6 SS 454 was its data plate... oh, and about \$110,000. While real LS6 convertibles go for about \$175,000, the buyer scored himself an identically equipped car, but for 63 percent less money. Authenticity aside, this was a well restored Chevelle that had been rebuilt several years ago, and thus was starting to show its age. However, it hadn't been driven much since its restoration, and only 314 miles showed on the odometer. Still, it was a very desirable M22 four-speed convertible that had numerous LS6 upgrades, including an LS6 engine with the correct CRV suffix code, but the block was re-stamped with the car's VIN. Was it worth the price paid? We say yes.



DODGE

Year: 1970 **Reserve:** None
Model: Challenger R/T **Selling Price:** \$44,000
Condition: Restored/#3 **Avg. Selling Price:** \$60,000

Here's more proof that you really can get a good deal at a Barrett-Jackson auction. This authentic Challenger R/T had a rotisserie restoration that was of a high caliber, A/C and a totally rebuilt 440-cu.in. engine backed by a 727 automatic. It was highly detailed inside and out and had all the correct factory markings, as well as authentic Mopar tach, radio, Rally gauges, console and bucket seats. The rolled-back odometer showed 386 miles, which likely were all the miles added since its restoration was completed. Why it sold for less than book value is anyone's guess, but whoever bought it scored himself a truly excellent deal; the restoration costs alone would exceed the purchase price!



OLDSMOBILE

Year: 1970 **Reserve:** None
Model: 4-4-2 W-30 **Selling Price:** \$77,000
Condition: Refurbished/#3+ **Avg. Selling Price:** \$130,000

With several perfectly restored W-30 convertibles selling for around \$130,000 in recent years, and being one of the few painted Rally Red, this W-30 seemed like an absolute bargain. The buyer knew that, and can easily transform this car into a six-figure car. With its odometer showing only 24,690 miles, it came with full documentation: The original dealer's invoice, build sheet and vehicle warranty card. The original 455/365 engine was rebuilt, but it had a Turbo 400 automatic with the Hurst dual-gate shifter, which probably prevented it from attracting higher bids. It had the correct, factory-installed W-25 outside air induction hood, plus bucket seats, sports steering wheel, and power everything.



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MECUM SPRING CLASSIC NETS \$42+ MILLION

A 1974 Nickey Camaro Stage III from the waning days of legendary tuner Nickey Chevrolet hauled in \$87,000 at Dana Mecum's Original Spring Classic, May 12-17, in Indianapolis, Indiana.

While that figure fell short of the car's \$135,000-\$175,000 presale estimate and probably well short of what a first-generation Nickey Camaro might command, this howling-yellow F-body definitely didn't come up short in the performance department.

Under its conspicuous L88 hood scoop resides a 427, reportedly ordered by the Chicago, Illinois-based horsepower broker as an L88 short block then fitted with "ZL-X" open-chamber cast-iron heads, delivering a compression ratio of about 12.5:1. The aluminum intake manifold selected was the low-rise unit used on the LS6, L78 and L89, then topped with a 780 Holley, while a set of tubular headers helped clear the chambers. The car was reportedly ordered with a 3.23:1 gear ratio, but now a more drag-race appropriate set of 4.56s resides in the

Camaro's 10-bolt housing. Meanwhile, a Turbo Hydra-Matic 350 and a set of slapper bars scream out for some foot-brake action.

Mecum bills its Original Spring Classic as the original and largest muscle car auction, but this year, a number of Ferraris crept into the top-10 sales. The auction, held at the Indiana State Fairgrounds, offered 1,404 vehicles in total, 916 of which drove off with new owners. Gross sales including premiums reached \$42,878,210.

The top earner of the event was a 1967 427 Cobra from the collection of Texas businessman Don Davis, which crossed the block for \$1 million. The Cobra, CSX3356, had been painted Guardsman Blue with white stripes, though it was originally red and outfitted to resemble an S/C Semi-Competition Cobra, when in actuality it's a Street Cobra—all of which probably accounts for the selling price. (Back in March, at RM Sotheby's Amelia Island sale, one of the 29 1967 427 S/C Cobras built sold for \$2.1 million.) Another Cobra from the Davis collection, a 1965 289



IMAGES: MECUM

with an automatic transmission, failed to find a new owner despite a high bid of \$1 million.

Aside from the cars from Maranello, Fords dominated the top 10 at the Spring Classic:

An unrestored 1969 Ford Mustang Boss 429 brought the third highest price of the event, selling for \$465,000; a 2005 Ford GT sold for \$380,000; a 1965 Shelby G.T. 350 sold for \$355,000; a 1963 Galaxie 500 lightweight sold for \$220,000; while another '69 Boss 429 rounded out the top 10, selling for \$185,000.

As this issue heads to press, Mecum is taking its travelling show to the Centurylink Field Event Center in Seattle, Washington, where 600 vehicles will cross the block. For results from past sales or information about upcoming Mecum auctions, head to www.mecum.com or call 262-275-5050.



BARRETT-JACKSON

BARRETT-JACKSON SET TO AWARD CUP AT RENO

Barrett-Jackson is rolling into Reno- Tahoe this month for its third-annual Hot August Nights Auction, August 6-8 at the Reno-Sparks Convention Center. One of the signature moments of the event will be the awarding of the Barrett-Jackson Cup for custom car owners and builders, which boasts a total prize package valued at more than \$100,000. This year, the Cup will be handed out on August 8.

"We're excited once again to bring together some of the finest customs and hot rods in the world to compete for the prestigious Barrett-Jackson Cup," said Craig Jackson, chairman and CEO of Barrett-Jackson. "It's a great component of the entire experience that you can only be a part of at Reno's Hot August Nights."

Barrett-Jackson judges Bobby Alloway, Pete Chapouris and Bob Millard will spend

several days in Reno whittling down 200 Barrett-Jackson Cup Show-n-Shine entrants to just 25, ultimately selecting the "Reno 5" on Saturday. Those final five competitors will then be whisked off to the Barrett-Jackson auction staging area at the Reno-Sparks Convention Center, where they will be kept under cover until the final announcement.

In 2014, Barrett-Jackson's Reno 5 was an exclusive group filled with previous winners of the Goodguys Truck of the Year, the Goodguys Street Machine of the Year, Goodguys Hot Rod of the Year, America's Most Beautiful Roadster and the vaunted Ridler Award. In the end, the judges selected Alan Beers's stunning 1957 Chevrolet pickup, *QuikSilver*, built by Jim and Jason Smith of Hot Rod Garage in Sand Springs, Oklahoma.

The truck is a tour de force of custom metal work: no panel was left unmodified, yet the execution is so perfect that the new lines can



AUCTIONS AMERICA AUBURN TOTALS \$5.5 MILLION

The \$165,000 sale of a 1987 Buick GNX at Barrett-Jackson's Palm

Beach auction in April was still fresh in our minds when we spotted this 1987 Buick GNX at Auctions America's Auburn Spring sale.

The black 1980s icon changed hands for \$110,000 and was said to have been driven only 119 miles from new. The sale included the original window sticker; the correct bound, numbered GNX book that was included with each new GNX; original protective plastic still on the floor; original keys; original floor mats and more. Though just 547 GNXs were built, you have to wonder how many were stashed away as future collectibles and how many of those will be coming to market in the next few years.

One of the marquis cars of Auctions America's Auburn sale, May 7-9, was a "Top Banana" (the High Impact/High Performance color name for yellow) 1970 Dodge Hemi Challenger R/T four-speed. The car is said to be one of 287 R/T Hemi Challenger hardtops built in 1970 and one of 11 with a Shaker Hood and a four-speed. This highly desirable E-body fell short of expectations on the block, earning a top bid of \$300,000, and the car remains for sale according to Auctions America.

The auction, which offered a variety of memorabilia and 350 vehicles, achieved total sales of \$5,521,885, with 77 percent of all lots sold. The multi-day event at Auburn Auction Park in Auburn, Indiana, attracted bidders from eight countries and 34 U.S. states. Auctions America said that 30 percent of the bidders were new Auctions America customers.

Auctions America will return to Auburn, September 2-6 and, as this issue heads to press, it's gearing up for its California sale July 17-18 in Santa Monica. For more information, head to www.auctionsamerica.com or call 310-842-3910.



IMAGES: AUCTIONS AMERICA

cause you to do a double or triple take. An injected 650-hp 540-cu.in. big-block Chevrolet helps *QuikSilver* live up to its name, while the truck rides on a heavily modified stock frame with Mustang II front suspension and a custom four-link rear.

Beers remembers the exhilaration he felt in 2014 when the second-place car was revealed and he realized he had won: "I can't tell you how pumped I was!" he said. "It's an unbelievable feeling, to win something like that and be interviewed on live national TV in front of millions of enthusiasts."

Custom vehicle or hot rod owners or builders wishing to compete for the 2015 Barrett-Jackson cup must be registered participants of Hot August Nights and fill out the application available at Barrett-Jackson.com. For more information about B-J events or results from previous auctions, go to Barrett-Jackson.com or call, 480-421-6694.

AUCTION CALENDAR

AUGUST

6-8 Barrett-Jackson

Reno-Tahoe
Reno, Nevada • 480-421-6694

13-15 Mecum

Monterey
Monterey, California • 262-275-5050

13-15 Russo and Steele

Monterey
Monterey, California • 602-252-2697

13-15 RM Sotheby's

Monterey
Monterey, California • 519-352 4575

21-22 Silver

Little Creek Resort and Casino
Shelton, Washington • 800-255-4485

Check dates with auction houses before traveling.

SEPTEMBER

2-6 Auctions America

Auburn Fall
Auburn, Indiana • 260-927-9797

5-6 Silver

Sun Valley Auction
Sun Valley, Idaho • 800-255-4485

12 Dan Kruse Classics

Austin
Austin, Texas • 866-495-8111

16-19 Mecum

Dallas
Dallas, Texas • 262-275-5050

24-26 Barrett-Jackson

Las Vegas
Las Vegas, Nevada • 480-421-6694

25-26 Silver

Portland Fall Auction
Portland, Oregon • 800-255-4485

Questions this month are from both high-performance muscle car owners and vintage car collectors alike. Most are from readers interested in making their cars safer or more fuel-efficient; others are hoping to locate restoration parts for their projects. We pick just a few to be featured in our Swap Meet column each month, and you will find answers to many other questions on our Hemmings.com website or on our Facebook page. Many of the questions we receive have already been addressed in the comments section beneath some of our previous Swap Meet columns, which can be searched from Hemmings.com.



SECOND-GEN F-BODY DISCS IN A 1970 CHEVELLE

Q: Can you verify that the front disc brakes from a 1979 Camaro will work and fit as a conversion onto a 1970 Chevelle?

Jeff Knight
Via email

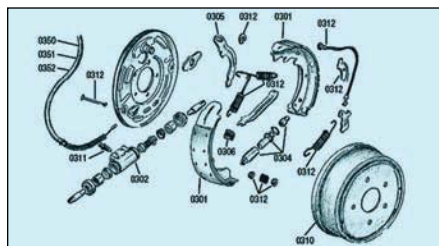
A: Yes, they will, but you must also change spindles, which, in turn, requires changing some other parts. Pre- and post-1972 spindles were different by 2-inches in height, and F-body steering arms that connect to the outer tie rod ends were shorter than those on the '72-earlier Chevelle. The angle of the early upper control arm is also different, and when used with the taller spindle and no other changes, the upper ball joint may bind as the suspension is compressed.

The aftermarket addressed this by offering tubular upper control arms, with altered geometry to accommodate the taller second-gen F-car spindle; actually, the kits are usually designed to use the similar 1977-'96 full-size B-body spindle. To perform the swap with the aftermarket arms and the B-body spindle, a custom-machined lower ball joint is

usually required, though most kits now include this. Contact Hotchkis Sport Suspension or Global West Suspension for more information on their tall-spindle control arm kits for GM A-body.

There is also a lot of information on this "tall spindle" swap/conversion on various enthusiast boards that may be helpful to you. Further information can be found in the HMM #41, February 2007 article about front disc brake conversions.

- Global West Suspension, 877-470-2975, www.globalwest.net
- Hotchkis Sport Suspension, 877-466-7655, www.hotchkis.net



WILLYS CJ BRAKE DRUMS

Q: I am looking for a possible donor vehicle to find acceptable rear brake drums for my 1955 Willys-Jeep CJ. The Jeep originally came with 9-inch drums with a 5.5-inch bolt pattern.

Stan Esparza
Via Hemmings blog

A: Jeep CJ 9 x 1 3/4-inch drums were the same, both front and rear, from 1953-'65 (OE part #808769). Willys also used both 10- and 11-inch drums on front and rear (except DJs and CJs) from 1946-'64. The 2WD station wagon and sedan delivery used 10-inch #641745 and the 4x4 Willys used 11-inch #642775. The 1957-'65 FC-150 and FC-170 forward control and 1963 J-series pickup drums also fit the Willys 11-inch applications.

The 1952-'55 Willys Aero passenger cars and 1956-'65 DJ postal jeeps (and also 1953-'55 Rambler passenger cars) used a 9 x 2-inch drum, #803786.

BIG-BLOCK 1953 CRESTLINE VICKY?

Q: I own a 1953 Crestline Victoria two-door hardtop with a flathead V-8, with straight gears on the column. I came across a 428 engine and a C-6 transmission from a 1970 Ford T-Bird and wanted to know whether or not a big-block will fit

in the '53 engine compartment.

In addition, will it need heavier-duty springs and shocks, or would the old '53 suspension parts work? Can I use the motor mounts, transmission mount, disc-brake setup, power-brake booster and master cylinder from the T-Bird?

Or should I go with a small-block Ford engine and transmission from a Ford Granada or Mustang? Other options?

Thomas N. Kates
Via email

A: It would be a huge undertaking to get a 428 engine to fit into a flathead engine compartment. The FE series V-8 is quite a bit larger than the flathead in terms of physical dimensions, and the engine bay of your '53 is not all that accommodating, though you said this was a '70 T-Bird, so it might in fact be a 429, which is a 385-series engine. Either way, our advice applies. Clearance issues will probably arise in multiple areas. We haven't attempted this and couldn't find anyone who had, though we're sure it's been done. Overall, you'd probably be looking at a lot of fabrication work. Here are some details to be aware of:

The steering column and steering gearbox would have to be changed, as the rigid manual steering shaft your car has will be in the way. The suspension would also have to be upgraded to compensate for the additional weight of the big-block engine; springs and shocks would have to be changed at a minimum. The engine weight will make the car very nose-heavy unless you can shift the center of gravity towards the rear. New engine and transmission crossmembers would be necessary; block hugger headers would need to be used instead of the stock exhaust manifolds, to lessen the width of the engine assembly.

You would also have no room for a power brake booster unless you mount the master cylinder under the floorboard. A driveshaft would have to be made to accommodate a C-6 mated to your existing rear end. Your brakes should also be upgraded, since both weight and performance potential would increase significantly. A front disc swap would be advisable, though the parts from your engine-donor T-Bird are probably not going to be very helpful. For that era Ford, you'd probably be better off with a



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dedicated aftermarket brake swap kit.

An easier swap would be a late-model 5.0-liter crate engine with a Tremec TKO five-speed manual or an AOD automatic transmission. If you want a classic look, I'd be researching a 260 V-8 small-block out of a Falcon or early Mustang with a four-speed. The AOD can be easily mated to the early small-blocks also. These will fit more easily and involve fewer suspension/brake modifications.

All sorts of high-performance engine parts are still available for the small-block Fords that will add extra horsepower and torque. The money you save by not modifying the rest of the car could be spent on upgrading the engine and adding a 9-inch rear differential. Then you'd have a sleeper that might outrun your friends, too.

of the difference in steering geometry. Your original spindles will accept a disc brake conversion kit that is supplied with spindle adapters to hold the caliper brackets. Several options are available from Classic Performance Products, Right Stuff Detailing and Inline Tube, among others. These use what is referred to as the D52 single-piston calipers that were stock on 1969 and newer full-size and mid-size GM cars. The D52 references the style of disc brake pad that fits the calipers.

You should also be careful to choose a kit that will allow you to use stock-type wheels, if that is what you intend. Many of the aftermarket kits offer dual-, four- or even six-piston calipers as options; however, they require that you also upgrade to wider/larger wheels. Your factory 1960 wheels probably won't work even with stock-type GM discs, as GM changed its steel wheel design slightly to provide adequate caliper clearance when it introduced regular passenger car disc brakes for the 1967 model year.

The donor 1986 Caprice you mention could have one of two possible brake setups. You mentioned that it has a 307-cu.in. V-8, which leads us to believe that it may be a station wagon. Only Caprice wagons of that period used the 307, which was an Oldsmobile engine—regular sedans and coupes used the 305 Chevy small-block. Also, the 307 Olds engine used in wagons was backed by the TH-200-4R transmission, while 305 cars used the 700-R4.

The engine and transmission type will come into play for your engine swap, but the brakes are related, because the station wagon and police-package sedans used larger brakes than the standard two- and four-door Caprices, and the cars with the larger brakes also used wheels with 5-on-5-inch bolt pattern, while standard cars used wheels with the typical GM 4¾-inch bolt circle. Brake rotors and calipers differ between the two, so take that into account.

The 9-inch Delco brake booster and master cylinder from the later model Caprice can probably be used, and possibly the calipers and rotors, depending on which setup your donor car has. Many of the above-mentioned aftermarket kits can also be purchased with or without the booster/master cylinder/proportioning valve combo,

but, again, you may be able to use the donor booster, master and valve from the Caprice.

- Inline Tube, 800-385-9452, www.inlinetube.com
- Classic Performance Products, 714-522-2000, www.classicperform.com
- The Right Stuff Detailing, 800-405-2000, www.getdiscbrakes.com



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SKYLARK GS FOUR-SPEED CONVERSION

Q: I have been a subscriber for many years and I must say I really enjoy your magazine. Your "Ask Ray" and "Swap Meet" sections are especially helpful. I haven't seen anything recently related to my problem, so I hope you can help. I have a 1967 Buick Skylark GS with an automatic transmission, and I'm thinking about converting it over to a four-speed. I have been a GM guy for as long as I can remember, and GM has been pretty good about interchanging parts. I would need a clutch and brake pedal setup, along with the clutch linkage. I am also not sure about the bellhousing. Would any A-body GM car of that year, such as a Chevelle, Pontiac or Olds work?

Roger Zorn
Menominee, Michigan

A: The pedal assemblies and clutch fork from any 1964-'67 A-body will fit; however, the bellhousing would have to come from a Buick, Olds or Pontiac donor. The Chevrolet bellhousing does not bolt up correctly. Pedal assemblies and all necessary linkage parts are easily found through multiple aftermarket A-body suppliers, if you cannot locate a donor vehicle. 🍀

We welcome any and all questions related to suspension, differential, brake, engine and transmission upgrades.

You can submit them to our Facebook page, www.facebook.com/HemmingsNews or our website where comments can be made at the bottom of dozens of previous Swap Meet articles we have posted there.

If you prefer, you can also email us at swapmeet@hemmings.com.



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DISC BRAKES FOR 1960 CHEVROLET IMPALA

Q: I am updating the driveline on my 1960 Chevy Impala. I have a 1986 Chevy Caprice donor car that I hope to be able to use for many of its parts. I would like to use the 307 V-8 and four-speed Turbo Hydra-Matic 700-R4 to replace the straight six-cylinder engine and Powerglide transmission in the 1960. I understand the engine and transmission swap should be pretty straightforward, but I also want to change to front disc brakes on the 1960 Impala. Can the power disc brake system (booster, master cylinder, calipers, rotors, etc.) from the 1986 Caprice be adapted into the 1960 Chevy without major cutting, welding or building brackets?

Clark Smith
Via Facebook

A: There are no direct swap donors that have all of the pieces you would need to acquire from a specific car. The disc brake spindles and suspension system from a later model do not interchange directly because

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By Tom Comerro



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Miscellaneous Muscle Musings

Let's face it:

owning a muscle car is no bed of roses. There are pros and cons, just like

anything else in life. But if you're prepared to deal with both, I feel the pros outweigh the cons.

I recently sat with some friends, enjoying some adult beverages, and this subject came up. We discussed parts, prices, auction results, car searches on the Internet, etc. Just typical B.S. car talk. Then the subject of pros and cons of ownership came up and everyone had a different opinion. Some interesting things were thrown on the table that I thought might interest you as food for thought and further discussion. Let's start with garages.

An enthusiast we know recently made an offer on a relatively new home and shortly realized he had a problem he never considered. That was the width and length of the garage. He owns two muscle machines, a '66 GTO and a '70 Road Runner. Like many California homes, the washer and dryer area is in the garage. After carefully measuring the usable parking space, he realized his cars were too long to allow him to completely close the garage door. Plus, to access the washer area, one car would have to be moved out. He quickly withdrew the offer. It seems today's new garages are scaled for shorter, narrower cars. That's why you see so many SUVs parked in the driveway. They are too tall, too long and too wide to fit inside.

With the current increase in muscle car prices, those of us who have held onto our cars through the Great Recession are finally seeing them appreciate back to, or close to, what we paid. Some of these cars are even moving into the profit column. While that wasn't necessarily the original intention, it's nice to not lose money on a hobby car.

If you're not a mechanic or an experienced restorer, finding an affordable shop to help you can be a serious problem. It seems that as soon as you drive in with an unrestored car, they turn on the "KA-ching" meter. Joining a muscle car club is a definite advantage in this area. Members usually know the best, most reasonable shops to use, and will point you in the right direction. If you are handy and can do some of the work yourself, that will obviously save you money while also providing some fun and personal satisfaction.

How about some tire talk? Many Sixties muscle cars came stock with 14 x 6-inch wheels. It seems that many of the traditional domestic tire manufacturers have dropped 14-inch tires altogether. So, in order to get either bias-ply or modern radial 14-inch replacements, you need to go to one of the companies manufacturing reproductions of the originals. A few advertise in this magazine. These reproduction redline or whitewall styles are available in radial form and drive/handle much better than the old bias-ply designs. Plus they last longer.

Now let's think about ethanol gas. In many areas, it's all we have, and it's not going away. It is definitely a problem for our old engines for several reasons. Ethanol is hygroscopic, which means it attracts moisture from the air. The gas in your tank is actually pulling moisture from the tank into your fuel. This means that water is being introduced into your engine in the gas, and our muscle car engines do not like water. Ethanol also lowers the boiling point of gasoline, which when combined with the water, can result in hard starting, flooding on hot days and other nasty problems.

Another dilemma faced by many is the question of whether to restore or modify the car. When I bought my first car in late '64, I never imagined I'd keep it stock, and everyone in our little discussion group felt the same way. Pie-pan hubcaps were quickly replaced with Torq Thrust or Cragar mags by most of us. If you are favoring restoration, don't make it so nice that you're afraid to drive it! At that point, it's just a large garage paperweight.

Despite some of the above, one of the most rewarding and fun aspects of owning a muscle car is driving it. If you are fortunate enough to own several, usually one is a replacement for your first car. This seems to be the case with most enthusiasts, finding and keeping an example of that first one that you let go away. Life happens!

As I see it, there are good and not so good things about owning a muscle car, but I haven't found any really bad features, except not being able to drive one every day. Even with insurance payments, registration and the upkeep that never stops, and my wife groaning that she can't park in the garage, I'd say it's worth every minute. What do you folks out there in muscledom think? 🍷

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